

# ULTRIX-32™

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Quick Reference Guide

Order Number : AA-MF11A-TE

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**ULTRIX-32**  
**Quick Reference Guide**

Order No. AA-MF11A-TE

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*PRINCETON COMPUTER CENTER  
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ULTRIX-32 Operating System, Version 3.0

Digital Equipment Corporation

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## Contents

This quick reference guide contains condensed information about the commands in Section 1 of the *UNIX-42 Reference Pages*.

The first section of the guide contains information about some of the more complicated commands in Section 1:

- `adb`
- `cdx`
- `ed`
- `ex`
- `vi`
- `sh`
- `cal`
- `revs`
- `mail`
- `netoff and neton`
- `mt`
- `mh`

The second section of this guide condenses the rest of the Section 1 commands.

To use this guide effectively, you should be familiar with the commands. For thorough specifications, of course, refer to the Section 1 Reference Pages.



## Details of Selected Commands 1

This section details some of the more complicated commands from Section 1 of the Reference Pages. These commands are:

- `adb` Debugger
- `dbx` Debugger
- `ed` Text Editor
- `ex` Text Editor
- `vi` Screen Editor
- `zh` Bourne Shell
- `csh` C Shell
- `SCCS` Commands
- `mail` Commands
- `troff` and `troff` Primitives
- `run` Message Package
- `mh` Message Handler

## adb Debugger

adb [-w] [-k] [-ldev] [objfil [corefil]]

### Options

- objfil Normally an executable program file, preferably containing a symbol table. Default is `main.o`.
- corefil A core image file produced after objfil is executed.
- ldev Specifies a directory where files to be read with `!r` or `!s<r>` will be sought. Default is `/usr/lib/adb`.
- k Specifies kernel memory mapping. Should be used when core is a crash dump on `idev/mem`.
- w Creates objfil and corefil if necessary, and opens them for reading and writing.

### Commands

- ! Keeps and executes shell command.
- !awhinc Repeat last command.
- >name Set dot to the variable or register named.
- ?[format] Print from object file.
- ?-[format] Print from object file using second mapping table.
- !format Print from core file.
- !-[format] Print from core file using second mapping table.
- =[format] Print address.

### Formats

- b Print 2 bytes in octal.
- B Print 4 bytes in octal.
- c Print signed octal.
- C Print long signed octal.

## 1.2 Details of Selected Commands

|                        |                                                                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| d                      | Print short decimal.                                                                                                                                    |
| D                      | Print long decimal.                                                                                                                                     |
| x                      | Print 2 bytes in hex.                                                                                                                                   |
| X                      | Print 4 bytes in hex.                                                                                                                                   |
| u                      | Print as unsigned decimal.                                                                                                                              |
| U                      | Print as long, unsigned decimal.                                                                                                                        |
| f                      | Print 32-bit floating point number.                                                                                                                     |
| F                      | Print double floating point.                                                                                                                            |
| b                      | Print 1 byte in octal.                                                                                                                                  |
| c                      | Print addressed character.                                                                                                                              |
| C                      | Print addressed character. Control characters are printed as '^X', the delete character as '^_'.<br>or <i>a</i> = reached.                              |
| s a                    | Print a string, a is length of string.                                                                                                                  |
| z                      | Print 4 bytes in date format.                                                                                                                           |
| t .                    | Print as intel hex instruction.                                                                                                                         |
| a                      | Print value of dot in symbolic form. Types are:<br>: Local or global data symbol.<br>? Local or global text symbol<br>= Local or global absolute symbol |
| p                      | Print addressed value in symbolic form.                                                                                                                 |
| l                      | Take to appropriate tab stop.                                                                                                                           |
| o                      | Print a space.                                                                                                                                          |
| n                      | Print a newline.                                                                                                                                        |
| "..."                  | Print the enclosed string.                                                                                                                              |
| .                      | Dot is decremented by the current increment; nothing is printed.                                                                                        |
| +                      | Dot is incremented by one. Nothing is printed.                                                                                                          |
| -                      | Dot is decremented by one. Nothing is printed.                                                                                                          |
| [?] <i> value mask</i> | Value mask words with mask until value bound.                                                                                                           |
| [?] <i> value</i>      | Write value into addressed location.                                                                                                                    |

#### Monadic operators

|      |                                                            |
|------|------------------------------------------------------------|
| *exp | Contents of location addressed by exp<br>in <i>acrfil</i>  |
| @exp | Contents of location addressed by exp<br>in <i>origfil</i> |
| -exp | Integer negation                                           |
| ~exp | Bitwise complement                                         |
| !exp | Logical negation                                           |

#### Dyadic operators

|       |                                             |
|-------|---------------------------------------------|
| e1+e2 | Integer addition                            |
| e1-e2 | Integer subtraction                         |
| e1*e2 | Integer multiplication                      |
| e1/e2 | Integer division                            |
| e1&e2 | Bitwise conjunction                         |
| e1 e2 | Bitwise disjunction                         |
| e1%e2 | 57 rounded up to the next multiple of<br>e2 |

|    |                                           |
|----|-------------------------------------------|
| r  | Run object file as a subprocess.          |
| cs | Continue subprocess with signal s.        |
| ss | Single step subprocess a number of times. |
| k  | Kill subprocess.                          |

#### Variables

|   |                                                                |
|---|----------------------------------------------------------------|
| 0 | Last value printed                                             |
| 1 | Last offset part of an instruction source                      |
| 2 | Previous value of variable 1                                   |
| 9 | Count on last <code>\$c</code> or <code>\$&lt;c</code> command |
| b | Base address of data segment                                   |
| d | Data segment size                                              |
| e | Entry point                                                    |
| m | Magic number                                                   |
| v | Stack segment size                                             |
| t | Text segment size                                              |

#### Expressions

|                  |                                                                                                                      |
|------------------|----------------------------------------------------------------------------------------------------------------------|
| .                | The value of dot                                                                                                     |
| +                | Dot plus increment                                                                                                   |
| -                | Dot minus increment                                                                                                  |
| *                | Last address typed                                                                                                   |
| integer          | Decimal number, octal if it starts with 0o or 0O, decimal if it starts with 0t or 0T, hex if it starts with 0x or 0X |
| integer/fraction | A 82-bit floating point number                                                                                       |
| 'cccc'           | The ASCII value of up to four characters                                                                             |
| name             | The value of variable or register name                                                                               |
| symbol           | The value of symbol                                                                                                  |
| symbol           | The value of an external symbol                                                                                      |
| variable name    | Address of variable name in routine                                                                                  |
| exp              | The value of expression exp                                                                                          |

## Table 62-27 (continued)

Change map parameters.

### Command

*Security* Miscellaneous commands

### Modifiers

|           |                                                                   |
|-----------|-------------------------------------------------------------------|
| <i>cf</i> | Read commands from file <i>f</i> .                                |
| <i>af</i> | Append output to file <i>f</i> .                                  |
| <i>r</i>  | Print registers and instruction addressed by pc.                  |
| <i>b</i>  | Print all breakpoints, counts, and commands.                      |
| <i>c</i>  | Call stack backtrace.                                             |
| <i>d</i>  | Set default radix to address and report new value.                |
| <i>e</i>  | Print external variables.                                         |
| <i>w</i>  | Set page width to address. Default is 60.                         |
| <i>s</i>  | Set limit on number of symbol matches to address. Default is 255. |
| <i>o</i>  | Set default for integer input to octal.                           |
| <i>q</i>  | Exit from addr.                                                   |
| <i>v</i>  | Print all nonzero variables in octal.                             |
| <i>m</i>  | Print the address map.                                            |
| <i>p</i>  | Get process context.                                              |
| <i>?</i>  | Print process ID.                                                 |

### Command

*security* Manage a sub-process

### Modifiers

|           |                                                            |
|-----------|------------------------------------------------------------|
| <i>bc</i> | Set breakpoint at address, <i>c</i> is command to execute. |
| <i>d</i>  | Delete a breakpoint at address.                            |

## dbx Debugger

**dbx** [-r] [-i] [-k] [-ldir] [-ofile] [objfile]  
[coredump]

- objfile* An object file containing symbol information.  
*coredump* A file containing a core dump.

### Options

- r Executes *objfile* immediately; prompts only on error.
- i Assumes standard input is a terminal.
- k Maps memory addresses for kernel debugging.
- Y *dir* Adds *dir* to directory search path.
- e *file* Executes commands in *file* before resuming from state.

### Commands

#### Execution and Tracing Commands

**run** [*args*] [<filename>] [>filename]  
**runn** [*args*] [<filename>] [>filename]  
Start executing *objfile*, passing *args* as command line arguments. < or > can be used to redirect input or output. Using *runn* instead of *run* passes the previous argument list to the program.

**trace** [*in procedure/function*] [*if condition*]  
**itrace** *source-line-number* [*if condition*]  
**ltrace** *procedure/function* [*in parentheses/function*] [*if condition*]  
**trnn** *expression at source-line-number* [*if condition*]  
**trace** *variable* [*in parentheses/function*] [*if condition*]  
Trace the expression or variable at the specified line or routine.

**stop if condition**  
**stop at source-line-number [if condition]**  
**stop in procedure/function [if condition]**  
**stop variable [if condition]**  
 Stops execution when the given line is reached, procedure or function called, variable changed, or condition true.

**status** [*> filename*]  
 Displays active trace and stop commands.

**delete** *command-number*  
 Removes all traces or stops corresponding to the given number. Delete\* removes all existing breakpoints and tracepoints at once.

**catch** *number or signal-name*  
**ignore** *number or signal-name*  
 Start or stop trapping a signal before it is sent to the program.

**cont** [*signal*]  
 Continues execution from where it stopped, passing *signal* if specified. Signal may be specified by name or by integer value.

**step**  
 Executes one source line, stepping into procedures.

**next**  
 Executes up to the next source line, stepping over procedures.

**return** [*procedure*]  
 Continues until return to procedure is executed, or until the current procedure returns if none is specified.

**call** *procedure(parameters)*  
Executes the object code associated with  
the named procedure or function.

### Printing Variables and Expressions

**assign** *variable = expression*  
Assigns value of expression to variable.

**dump** [*procedure*] [*>file*name]  
Prints names and values of variables in  
given procedure. If procedure given is  
"", then all active variables are  
dumped.

**print** *expression [, expression, ]*  
Prints out values of the expressions.

**whatis** *name*  
Prints declaration of the given name.

**which** *identifier*  
Prints full qualification of the given  
identifier

**wherein** *identifier*  
Prints full qualification of all occurrences  
of the given identifier. (See *which*.)

**where**  
Prints a list of active procedures and  
functions.

**down** [*count*]

**up** [*count*]  
Move the current scope up or down the  
stack *count* levels. Default is 1.

### Accessing Source Files

*/regular expression, ?*

*/regular expression ?*

Search forward (/) or backward (?) in current  
source file for given pattern.

**edit** [*file name*].  
**edit** *procedure/function name*  
 Invokes default editor on filename or current source file if unspecified.

**file** [*filename*]  
 Changes current source file name to *filename*.

**line** *procedure/function*  
 Changes current line:nn.

**list** [*source-line-number* [*source-line-number*]]  
**list** *procedure/function*  
 Lists specified source lines or procedure.  
 Default is 10 lines unless range is specified.

**use** *directory-list*  
 Sets directory search path for source files.

#### Command Aliases and Variables

**alias** *name name*  
**alias** *name "string"*  
**alias** *name (parameter) "string"*  
 Defines an alias for *name*. If no parameters are specified, all aliases are displayed.

**set** *name [=expression]*  
 Defines debugger variable.

The following have special meaning:

**\$frame**  
 Specifies stack frame. Useful in kernel debugging.

**\$hexint**  
**\$hexchar**  
**\$hexoffset**  
**\$hexstring**

Print characters, integers, offsets from registers, or character pointers in hexadecimal.

#### **\$listwindow**

Specifies number of lines to list around a function. Default is 10.

#### **\$mapaddress**

Starts or stops address mapping.

#### **\$unmapall**

#### **\$unsafesmp**

Turns off typechecking for subroutines calls, system calls, or between two sides of an assignment statement.

#### **unalias name**

Remove alias.

#### **unadd name**

Delete definition or alias of name.

#### **Machine Level Commands**

**trace** [address] [if cond]

**trace** [counters] [at address] [if cond]

**stop** [address] [if cond]

**stop** [at] [address] [if cond]

**stop**

**next**

Trace, stop, or step by machine instruction rather than by source line.

**address, address+ [mode]**

**address : [count mode]**

Displays memory contents from first address up to second address or until count items are displayed. The following modes specify how memory is to be displayed.

- b Displays a byte in octal.
- c Displays a byte as a character.
- d Displays a short word in decimal.
- D Displays a long word in decimal.
- f Displays a single precision real number.
- g Displays a double precision real number.
- i Display machine instruction.
- o Displays a short word in octal.
- O Displays a long word in octal.
- s Displays string of characters terminated by a null byte.
- x Displays a short word in hexadecimal.
- X Displays a long word in hexadecimal.

#### Miscellaneous Commands

- help Displays a synopsis of *dlx* commands.
- quit Exits *dlx*.
- sh *command\_line*  
Pases command line to the shell for execution. The SHELL environment variable determines which shell is used.
- source *filename*  
Reads *dlx* commands from given *filename*.

## ad Text Editor

ad [-l|-x] file

ed [-l|-x] file

- file Name of file to be edited.
- Suppresses display of character counts.
- x Simulates x command.

### Commands

- a Append text.
- c Change text.
- d Delete text.
- e file Edit file.
- E file Edit file, but display no warning message.
- f file Change name of current file to file. Default is current file name.
- (1,5)gR/R command bar Execute commands globally on each line containing search expression (R/R).
- (1,5)G/RE/ Execute only execute commands globally on each line containing search expression (RE).
- b Displays short error message explaining reason for most recent ? diagnostic.
- B Displays error message for all subsequent ? diagnostics and previous ?.
- i Insert text.
- j Join lines.
- lax Mark line with character x.
- L List lines and give ASCII equivalents for unprintable characters.
- ma Move addressed line after line n.

|                                |                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------|
| <b>n</b>                       | Number and list each addressed line.                                                        |
| <b>P</b>                       | Print text lines.                                                                           |
| <b>P</b>                       | Turns on and off ed prompts.                                                                |
| <b>q</b>                       | Quit edit session.                                                                          |
| <b>q</b>                       | Quit edit session and issue no warning message.                                             |
| <b>(R) r file</b>              | Read file after the addressed line.                                                         |
| <b>s/RE/rep/</b>               | Substitute replacement expression (rep) for search expression (RE).                         |
| <b>s/RE/rep/g</b>              | Substitute replacement expression (rep) for every occurrence of search expression (RE).     |
| <b>t a</b>                     | Copy lines to address a.                                                                    |
| <b>u</b>                       | Undo the previous substitution.                                                             |
| <b>(1,R) v/RE/command list</b> | Execute command list on all lines that do not contain search expression (RE).               |
| <b>(1,R) V/RE/</b>             | Execute interactive global command on all lines that do not contain search expression (RE). |
| <b>(1,R) w file</b>            | Write lines to file.                                                                        |
| <b>X</b>                       | Delete a key string from the standard input.                                                |
| <b>(R) =</b>                   | Print current line number.                                                                  |
| <b>!shell command</b>          | Execute shell cmd.                                                                          |
| <b>(,+1) &lt;newline&gt;</b>   | Print next line.                                                                            |

## ex Text Editor

**ex** [-] [-v] [-t tag] [-r] [+command] [-] *name*..  
**edit** *rea* *options*  
**name** Name of file to be edited.

### Options

- Suppress all interactive user feedback.  
-v Equivalent to *ex* command.  
-t *tag* Edit the file containing the *tag*, and position the editor at the definition. Equivalent to an initial *gq* command.  
-r Recover named file after an editor or system crash. If no file is specified, display a list of saved files.  
-i Set the *showmatch* and *lso* options.

### Commands

a Append text.  
c Change text.  
cc Copy text line.  
d Delete text lines.  
e *file* Edit file.  
f Print current file name.  
*globalmode* Execute commands globally on all lines containing search expression (*exp*).  
i Insert text.  
j Join text lines.  
l List text lines and show tabs and end of lines.  
ma *x* Mark line with character argument *x*.

|         |                                                                      |
|---------|----------------------------------------------------------------------|
| m addr  | Move text lines after addr.                                          |
| n       | Edit next file.                                                      |
| np      | Number and fix each addressed line.                                  |
| o       | Open new line for text insertion.                                    |
| p       | Print text lines.                                                    |
| pu      | Put back deleted or yanked lines.                                    |
| q       | Quit edit session.                                                   |
| r file  | Read file into buffer.                                               |
| set     | Set or list ex options.                                              |
| sh      | Execute shell.                                                       |
| srp/rxp | Substitute replacement expression (rxp) for search expression (srp). |
| u       | Undo last editing command.                                           |
| vi      | Enter vi (full-screen display) mode.                                 |
| w file  | Write buffer back to file.                                           |
| x       | Exit edit session and write to file, if necessary.                   |
| y       | Yank specified lines to buffer.                                      |
| ! cmd   | Exit and execute the specified command (cmd).                        |

## vi Screen Editor

vi [-t tag] [-e ei] [- command] [-ll] [-wa]  
name ...

### Screen Control Commands

- <CTRL>J Repairs current screen.
- <CTRL>R Repairs current screen and eliminates  $\phi$  lines.
- x<RETURN> Moves current line to top of screen.
- x- Moves current line to bottom of screen.
- x. Moves current line to center of screen.
- gsscreen/x- Moves line containing pattern to bottom of screen.
- xn Sets screen size to n lines.
- <CTRL>Y Exposes one more line at top of screen.
- <CTRL>W Exposes one more line at bottom of screen.
- n<CTRL>E Exposes n more lines at bottom of screen.
- n<CTRL>Y Exposes n more lines at top of screen.

### Paging Commands

- <CTRL>F Pages forward one screen.
- <CTRL>B Pages back one screen.
- <CTRL>D Pages down half screen.
- <CTRL>U Pages up half screen.

### Cursor Positioning Commands

- j Moves cursor down one line, same column.
- k Moves cursor down n lines, same column.

|          |                                                                                       |
|----------|---------------------------------------------------------------------------------------|
| k        | Moves cursor up one line, same column.                                                |
| nk       | Moves cursor up n lines, same column.                                                 |
| b        | Moves cursor back one character.                                                      |
| nb       | Moves cursor back n number of characters.                                             |
| f        | Moves cursor forward one character.                                                   |
| nf       | Moves cursor forward n number of characters.                                          |
| +        | Moves cursor to beginning of next line.                                               |
| <RETURN> | Moves cursor to beginning of next line.                                               |
| -        | Moves cursor to beginning of previous line.                                           |
| ^        | Moves cursor back to line, tabblank spaces on current line.                           |
| 0        | Moves cursor to beginning of current line.                                            |
| \$       | Moves cursor to end of current line.                                                  |
| <SPACE>  | Moves cursor forward one character.                                                   |
|          | Moves cursor to column n.                                                             |
| w        | Moves cursor forward one word.                                                        |
| ow       | Moves cursor forward n number of words.                                               |
| b        | Moves cursor back one word.                                                           |
| nb       | Moves cursor back n number of words.                                                  |
| e        | Moves cursor to end of current word. When repeated, moves cursor to end of next word. |

|          |                                                                    |
|----------|--------------------------------------------------------------------|
| H        | Moves cursor to beginning of first line on screen.                 |
| L        | Moves cursor to beginning of last line on screen.                  |
| M        | Moves cursor to beginning of middle line on screen.                |
| nG       | Moves cursor to beginning of line n. Default is last line of file. |
| fx       | Moves cursor forward on current line to next occurrence of x.      |
| Fx       | Moves cursor back on current line to previous occurrence of x.     |
| tx       | Moves cursor forward on current line to character before x.        |
| Tx       | Moves cursor back on current line to character before x.           |
| :        | Repeats previous f, F, t, or T command.                            |
| .        | Reverses direction of f, F, t, or T command.                       |
| /pattern | Moves cursor forward to next occurrence of pattern.                |
| ?pattern | Moves cursor back to previous occurrence of pattern.               |
| n        | Repeats last / or ? pattern search.                                |
| N        | Reverses direction of last / or ? pattern search.                  |
| %        | Finds matching ( ), [ ], or { if cursor on either one of the pair. |
| ^        | Moves cursor to previous context. Functional only.                 |

|    |                                                                                                                    |
|----|--------------------------------------------------------------------------------------------------------------------|
|    | after altering text or searching a pattern.                                                                        |
| "  | Moves cursor to beginning of previous context line.<br>Functional only after altering text or searching a pattern. |
| mx | Marks current position with letter x. ex.                                                                          |
| x  | Moves cursor to position previously marked x.                                                                      |
| %  | Moves cursor to beginning of line containing position marked x.                                                    |
|    | Moves cursor to next section (for text containing formatting insert).                                              |
|    | Moves cursor to previous section (for text containing formatting insert).                                          |
| )  | Moves cursor to beginning of next sentence.                                                                        |
| )  | Moves cursor to beginning of next paragraph.                                                                       |
| (  | Moves cursor back to previous sentence.                                                                            |
| (  | Moves cursor back to previous paragraph.                                                                           |

#### Text Insertion Commands

|   |                                                                                             |
|---|---------------------------------------------------------------------------------------------|
| a | Append text after cursor until stopped by pressing the escape key.                          |
| A | Append text at end of current line until stopped by pressing the escape key.<br>Same as da. |
| i | Insert text before cursor until stopped by pressing the escape key.                         |

|                       |                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------|
| <b>I</b>              | Inserts until at beginning of current line until stopped by pressing the escape key. Same as <b>I</b> . |
| <b>O</b>              | Opens new line below current line for text insertion until stopped by pressing the escape key.          |
| <b>O</b>              | Opens new line above current line for text insertion until stopped by pressing the escape key.          |
| <b>&lt;CTRLD&gt;</b>  | Backs out text one shift width. Auto indent must be set.                                                |
| <b>&lt;CTRLBD&gt;</b> | Backs out text to left edge of screen. Auto indent must be set.                                         |
| <b>&lt;CTRLH&gt;</b>  | Overwrites last character during text insertion.                                                        |
| <b>&lt;DELETE&gt;</b> | Overwrites last character during text insertion.                                                        |
| <b>&lt;CTRLT&gt;</b>  | Indents text one shift width. Shift width must be defined.                                              |
| <b>&lt;CTRLW&gt;</b>  | Deletes previous word during text insertion.                                                            |
| <b>&lt;ESC&gt;</b>    | Stops text insertion.                                                                                   |
| <b>&lt;CTRLV&gt;</b>  | Inserts and displays following control character (next argument).                                       |

#### Text Deletion Commands

|                 |                             |
|-----------------|-----------------------------|
| <b>dw or dW</b> | Deletes current word.       |
| <b>x</b>        | Deletes current character.  |
| <b>X</b>        | Deletes previous character. |
| <b>nx</b>       | Deletes n characters.       |
| <b>dw or dW</b> | Deletes current word.       |

|             |                                                                                 |
|-------------|---------------------------------------------------------------------------------|
| <i>n</i> dw | Deletes <i>n</i> words. Default is current word (or remainder of current word). |
| de          | Deletes current word but leaves punctuation.                                    |
| dd          | Deletes current line.                                                           |
| add         | Deletes <i>n</i> lines.                                                         |
| adi         | Deletes current line plus next <i>n</i> lines.                                  |
| D           | Deletes from cursor to end of line.                                             |
| dpartn      | Deletes all text up to <i>pattern</i> .                                         |
| d/x         | Deletes text through the given <i>x</i> .                                       |

#### Text Change Commands

Change commands work with objects, put you into insert mode, edit text to right or left to 0, and must be ended with the escape key.

|           |                                                                                  |
|-----------|----------------------------------------------------------------------------------|
| cc        | Changes characters on current line until stopped with escape key.                |
| ccc       | Changes <i>n</i> (number) of lines.                                              |
| ccw or cW | Changes characters of current word until stopped with escape key.                |
| ccw       | Changes characters of next <i>n</i> words.                                       |
| c\$       | Changes text up to the end of the line.                                          |
| ct        | Changes text up to the given letter <i>x</i> .                                   |
| c         | Changes remaining text on current line until stopped by pressing the escape key. |
| .         | Changes case of current character.                                               |

- mp** Transposes current and following characters.
- J** Joins current line with next line.
- >>** Moves current line one shift width to the right.
- <<** Moves current line one shift width to the left.
- >I** Moves all lines between cursor and end of screen one shift width to the right.
- <I** Moves all lines between cursor and end of screen one shift width to the left.
- n><** or **nI><** Moves a number of text lines one shift width to left or right respectively.

#### Text Replacement Commands

Replacement commands work on a single character or to the end of the line; put you into overwrite mode, do not shift any text, and must be ended with the escape key.

- x** Replaces current character with **x**.
- E** Replaces existing text on current line until stopped with the escape key.

#### Text Substitution Commands

Substitution commands work on a character or line and can be repeated, put you into insert mode, shift text from right or left to fit, and must be ended with the escape key.

- s** Substitutes text for current character until stopped by pressing the escape key.

- g Substitutes text for current line until stopped by pressing the escape key.
- is Substitutes new word(s) for old. Written as: <addr range> word(s)reg, where addr range is a range of line numbers. Example: c1,4 acastrackig.
- & Repeats last substitution (is) command.

#### Undo and Redo Commands

These commands apply to all text alteration activities.

- u Undoes last change made.
- U Restores current line.
- . Repeats last change.

#### Buffer Usage Commands

- ny Yanks n lines to unnamed buffer. Default is current line.
- yy Yanks current line to unnamed buffer.
- nyy Yanks n lines to unnamed buffer. Default is current line.
- 'xp Put back text from all previous yanks (1-9).
- yw Yanks current word to unnamed buffer.
- yww Yanks n words to unnamed buffer.
- p Put yanked text (lines) after current line or yanked words after cursor.
- P Put yanked text (lines) before current line or yanked words before cursor.

|                    |                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------|
| <b>*xwY</b>        | Yanks <i>w</i> lines to buffer <i>x</i> <i>last</i> .<br>Default is current line.                              |
| <b>*yyl</b>        | Yanks text from cursor to end<br>of screen into buffer <i>yl</i> .                                             |
| <b>*xy partern</b> | Yanks text from cursor to<br>pattern into buffer <i>x</i> [ <i>a-z</i> ].                                      |
| <b>*nndd</b>       | Delete <i>n</i> lines and saves them<br>in buffer <i>nn</i> [ <i>a-z</i> ]. Default, <i>a</i><br>current line. |
| <b>*np</b>         | Put text from buffer <i>nn</i> [ <i>a-z</i> ]<br>before current line.                                          |
| <b>*xP</b>         | Put text from buffer <i>x</i> [ <i>a-z</i> ]<br>after current line.                                            |

You may also park, copy, or delete a *w* command into a named buffer and then execute the command with *Wx*, where *x* is any letter or that you have used to name the buffer to which you have put your command.

## File Manipulation Commands

|                         |                                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------|
| <b>w</b> <i>file</i>    | Writes changes to <i>file</i> .<br>Default is current file.                                             |
| <b>wq</b>               | Writes changes to current file<br>and quits edit session.                                               |
| <b>w! <i>file</i></b>   | Overwrites <i>file</i> . Default is to<br>overwrite current file.                                       |
| <b>q</b>                | Quits edit session (no changes<br>made).                                                                |
| <b>q!</b>               | Quits edit session and discards<br>changes.                                                             |
| <b>o <i>file</i></b>    | Edits <i>file</i> .                                                                                     |
| <b>o!</b>               | Discards changes and reedits<br>current file.                                                           |
| <b>o +n <i>file</i></b> | Edits <i>file</i> and places cursor at<br>line n. Default is to place<br>cursor at end of <i>file</i> . |
| <b>sof</b>              | Slides alternate file. Allows<br>shifting of text between files<br>by using named buffers.              |
| <b>sub</b>              | Executes shell and then<br>returns to edit session.                                                     |
| <b>shcmd</b>            | Recompiles to execute cmd and<br>then returns to edit session.                                          |
| <b>o</b>                | dis next file in argument list.                                                                         |
| <b>sf name</b>          | Changes name of current file<br>to name. Default is to sort<br>name of file and current line<br>number. |
| <b>&lt;CTRL-G</b>       | > Displays current file name and<br>line number.                                                        |
| <b>tr <i>file</i></b>   | Reads contents of file into<br>current file at current cursor<br>position.                              |
| <b>trg <i>file</i></b>  | Sorts given ex or vi<br>command file.                                                                   |
| <b>yes m</b>            | Numbers each text line.                                                                                 |

### Command Filters

A command filter takes input from the buffer, modifies it, and inserts its output back into the buffer in place of the input text.

- !command** Uses text of cursor positioning command as buffer as standard input to the given command and replaces the buffer text with output from the command.  
Example: !Gsort will sort all text to the end of the file, then replace those lines with the sorted output.
- !ncommand** Performs the command on the current line, then replaces the current line with the output from the command.  
Example: !4sort will sort the next 4 lines and replace those lines with the sorted output.
- !>command** Reads in the output of the command after the current line. Example: !>date will add the date after the current line.
- !w!command** Sends contents of the buffer to a command without affecting them.  
Examples: !w lwc will count the buffer contents; !w lpr will print the buffer contents; !w 25w lpr will print lines 1 through 25.

### Startup Commands

Map commands and named command buffers can be set up in the EXINE1 variable located in the .login file in your home directory. This creates your editing environment whenever *vi* is invoked. Unused keys available for *vi* command mapping are K, V, g, q, v, ^, ~. It is also possible to redefine any built-in *vi* command keys, as shown in the following example (K, a and S).

### Example .login file EXINIT setting

```
setenv EXINIT 'set ai aw lc sw=4 redraw terse|map g  
G map v _ |map R _<<CTRL-M> map s  
_<<esc> map K _<<esc> %<<CTRL-M> map S  
G|<<esc>A'<<esc>uSkkie s<<CTRL-M>'
```

|              |                                                                                                                                                                                                                              |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ai           | Auto indent                                                                                                                                                                                                                  |
| aw           | Auto write                                                                                                                                                                                                                   |
| lc           | Ignore case on searches                                                                                                                                                                                                      |
| sw           | Soft width = 4 spaces (<, >, CTRL-D, CTRL-T).                                                                                                                                                                                |
| redraw       | Redraw screen after deletion.                                                                                                                                                                                                |
| terse        | Terse error messages.                                                                                                                                                                                                        |
| wm           | Wrap margin (spaces from right edge of screen). Automatic line splitting.                                                                                                                                                    |
| wo           | Wrap even around end of buffer on search.                                                                                                                                                                                    |
| map          | Define your own commands.                                                                                                                                                                                                    |
| mapx command | Map operator where x is any letter, command is any viex command or combination of commands.<br>Examples: map g G cursor g<br>command to _<<_ like G.<br>map v _ causes letter v to<br>change the case of the next 4 letters. |

### Source Command Files

Editor options and key mappings that only affect the current invocation of vi can be specified in a file that you source after invoking vi.

Examples:

A file named .dialcmd containing commands "set  
redraw slow" would be useful on a dial-in terminal.

A file named .exrc containing these commands could be used when editing English text:

```
set ic win=10  
ab U ULTRIX  
ab UEG ULTRIX Engineering Group
```

Invoke this command from within vi as follows:

```
:so .exrc
```

## Bourne Shell Format

`sh [- cilmsuwx] [arg1 ...]`

- `arg` Name of each command sequence to be executed. If not specified, invokes an `sh` command for interactive execution.
- `-c string` Executes the specified commands.
- `-e` Exits immediately on unsuccessful execution of a command.
- `-i` Invokes `sh` for interactive session.
- `-k` Places all specified keywords into current execution environment.
- `-n` Reads all commands but does not execute them.
- `-r` Reads state until `CTRL-D` and uses this input as the command sequences to be executed.
- `-t` Exit after executing one command only.
- `-u` Treats all undefined variables as an error.
- `-v` Displays each input line upon execution.
- `-x` Displays all command sequences before execution.
- `-` Turns off the `-v` and `-x` options.

## Command Execution

- `cmd1 cmd2` Pipes output of `cmd1` as input to `cmd2`.
- `cmd1 & cmd2` Executes commands in succession.
- `cmd &` Executes `cmd` in background.
- `cmd1 && cmd2` Executes `cmd2` only if `cmd1` succeeds.
- `cmd1 | cmd2` Executes `cmd2` only if `cmd1` fails.

## Input/Output Redirection

- `> file` Redirects standard output to `file`.
- `[n]> file` Redirects file descriptor `n` to `file` output.
- `< file` Redirects standard input from `file`.
- `[n]< file` Redirects input from `file` to any file descriptor `n`.

|                               |                                                                                                                |
|-------------------------------|----------------------------------------------------------------------------------------------------------------|
| <code>&gt;&gt; file</code>    | Redirects standard output and appends to <i>file</i> .                                                         |
| <code>[n]&gt;&gt; file</code> | Redirects file descriptor <i>n</i> and appends to <i>file</i> .                                                |
| <code>&lt;&lt; word</code>    | Reads standard input until encounters line containing only single word.                                        |
| <code>&amp;&amp; n</code>     | Duplicates file descriptor <i>n</i> and uses as standard output.                                               |
| <code>1n1&gt;&amp; n</code>   | Duplicates file descriptor <i>n</i> , appends data from file <i>n</i> to <i>n</i> and uses as standard output. |
| <code>&lt;&amp; n</code>      | Duplicates file descriptor <i>n</i> and uses as standard input.                                                |
| <code>m1n&lt;&amp; n</code>   | Duplicates file descriptor <i>n</i> , appends file descriptor <i>m</i> to <i>n</i> and uses as standard input. |
| <del>&lt;&lt;&lt;</del>       | Closes standard input.                                                                                         |
| <del>&gt;&gt;&gt;</del>       | Closes standard output.                                                                                        |

#### File Name Generation

|                    |                                                                                     |
|--------------------|-------------------------------------------------------------------------------------|
| <code>?</code>     | Matches any single character.                                                       |
| <code>*</code>     | Matches any string of characters, including a null string.                          |
| <code>[xyz]</code> | Matches any of the enclosed characters <i>xyz</i> . Initial dots are never matched. |

#### Variable Substitution

|                  |                                                           |
|------------------|-----------------------------------------------------------|
| <code>\$</code>  | Substitutes defined value for <i>x</i> .                  |
| <code>\$*</code> | Substitutes all arguments for <i>*</i> .                  |
| <code>\$@</code> | Same as <i>\$*</i> but quotes each argument.              |
| <code>\$-</code> | Substitutes option flags used to invoke current shell.    |
| <code>\$#</code> | Substitutes number of specified arguments for <i>\$</i> . |
| <code>??</code>  | Substitutes exit status of last command for <i>?</i> .    |
| <code>\$S</code> | Substitutes process ID of current shell for <i>S</i> .    |

|          |                                                                                                                              |
|----------|------------------------------------------------------------------------------------------------------------------------------|
| \$?      | Substitutes process ID of last background command for !.                                                                     |
| \$HOME   | Substitutes path of default home directory for HOME.                                                                         |
| \$PATH   | Substitutes default execution search paths for PATH.                                                                         |
| \$MAIL   | Substitutes path of your mail file for MAIL.                                                                                 |
| \$PS1    | Substitutes primary prompt string for PS1.                                                                                   |
| \$PS2    | Substitutes secondary prompt string for PS2.                                                                                 |
| \$IFS    | Substitutes interfield separator for IFS.                                                                                    |
| \$TERM   | Substitutes terminal type for TERM.                                                                                          |
| %n       | Parameter at position n.                                                                                                     |
| \$[p-w]  | Substitutes value for parameter if set; otherwise substitutes zero.                                                          |
| \$[p-w]  | Substitutes value of parameter that is set to word.                                                                          |
| \${p[w]} | Substitutes value of set command. If no, i.e., prints word and exits from shell. Prints standard message if word is omitted. |
| \$(p w)  | Substitutes word for parameter if set.                                                                                       |

#### Quoting

|       |                                                                                   |
|-------|-----------------------------------------------------------------------------------|
| x     | Quotes specified character x.                                                     |
| 'xyz' | Quotes specified character string xyz, including special characters: \, ', ", \$. |
| "xyz" | Quotes specified character string xyz, excluding \, ', \$.                        |

The use of double quotation marks (" ") cause suppression of file name generation, while permitting the variable expression to be used. Single quotation marks (' ') cause suppression of file name generation and variable substitution.

#### Control Flow Constructs

All of the following control flow constructs must be the first command in the list in order to be recognized.

```

for name in word... do list done
case word in pat1 [pat2]...) list... esac
if list then list [still list then list]...
[else list] fi
while list [do list] done
{list}      Executes commands in list in a
            subshell.
list        Executes commands in list in
            current shell.
:           Serves as null command to identify
            line as comment.
. file      Reads in commands to be executed
            from specified file.
break [n]   Exits from loop at specified level n.
continue [n] Continues with next iteration of loop
            at specified level n.
cd [arg]    Changes current directory to arg.
            The shell parameter $HOME is the
            default arg.
exit [n]     Exits with specified status n.
eval [arg...]  
eval arg... Reads and executes each specified
            argument.
exec [arg...]  
exec arg... Executes each specified argument
            without creating a new process. If
            no arguments are given, shell file
            descriptors are modified with the use
            of input/output directional symbols.
export name... Exports each named variable to
            current execution environment.
login [arg...]  
read name   Equivalent to 'exec login arg ...'.
            Reads standard input and assigns
            name.
readonly [name...]  
set [-shu] [arg...]  
set [-shu] Sets the following /bin/sh shell
            options:

```

- o Exits immediately if a command fails when not interactive.
- k Places all keyword arguments in the environment for a command, not just those that precede the command name.
- n Reads commands but does not execute them.
- t Exits after reading and executing one command.
- u Treats unset variables as an error when substituting.
- v Prints shell input lines as they are read.
- x Prints commands and their arguments as they are executed.
- Turns off the **x** and **-v** options.
- shift Shifts positional parameters left:  $P_1 = P_2$  and so on.
- time Prints accumulated process times.
- trap *arg* [*n*] Executes *arg* only if signal *n* is received.
- umask *mask* Sets the umask file creation mask to the decimal value *mask*. Default: Prints the current value of the umask.
- wait [*n*] Waits for specified process (e.g. Default: is to wait for all child processes).

|     |                                                                |
|-----|----------------------------------------------------------------|
| \$@ | Substitutes <code>\$argv[n]</code> for <code>\$n</code> .      |
| \$* | Substitutes all arguments to the shell for <code>\$*</code> .  |
| \$_ | Substitutes exit status of last command for <code>\$_</code> . |
| %%  | Substitutes process ID of parent shell for <code>%%</code> .   |

#### Predefined Variables

|                        |                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------|
| <code>argv</code>      | Contains array of arguments to the shell.                                                  |
| <code>cdpath</code>    | Contains list of subcommand directories to search for <code>cd</code> command.             |
| <code>pwd</code>       | Contains path for current working directory.                                               |
| <code>echo</code>      | Causes each command and argument to be echoed just before execution with all translations. |
| <code>history</code>   | Contains size of the history list.                                                         |
| <code>home</code>      | Contains path for home directory.                                                          |
| <code>ignoreeof</code> | Disables logging out by <code>CTRL-D</code> .                                              |
| <code>mail</code>      | Contains path for mail file.                                                               |
| <code>noeof</code>     | Prevents accidental file destruction.                                                      |
| <code>nojob</code>     | Inhibits file name expansion.                                                              |
| <code>nonomatch</code> | Prevents errors in nonmatching file expansions.                                            |
| <code>notify</code>    | Notifies when job completes.                                                               |
| <code>path</code>      | Contains search paths for command execution.                                               |
| <code>prompt</code>    | Contains prompt string.                                                                    |
| <code>shell</code>     | Contains path to shell program.                                                            |
| <code>status</code>    | Contains status return by last command.                                                    |
| <code>term</code>      | Contains terminal type.                                                                    |
| <code>time</code>      | Controls printing of command timing.                                                       |
| <code>verbose</code>   | Echoes commands only with history substitutions.                                           |

#### Control Flow Constructs

`foreach name (list)`

end

switch (string)  
case str:

    breaksw  
default:

    breaksw  
endsw

if (expr) cond or if (expr) then

else if (expr2) then

else

endif

while (expr)

end

## C Shell Format

`ash [-cdkfstvx] [-arg ...]`

- `arg` Name of each command to be executed and command options and arguments, if any.
- V Displays verbose information as input is read.
  - X Displays command sequence before execution.
  - c Executes commands from specified file (text segment).
  - e Exits if command terminates abnormally.
  - f Invoked with test start up; does not read .cshrc.
  - i Invokes interactive shell (default).
  - k Reads commands, but does not execute them.
  - n Reads input from stdin.
  - r Exits after one command.
  - v Displays input as read (verbose mode).
  - s Prints on execution.

## Command Execution

- `cmd1 | cmd2`  
Pipes output of `cmd1` to input of `cmd2`.
- `cmd1 ; cmd2`  
Executes commands in succession.
- `cmd &` Executes `cmd` in background.
- `cmd1 && cmd2`  
Executes `cmd2` only if `cmd1` succeeds. Exit status is 0.
- `cmd1 || cmd2`  
Executes `cmd2` only if `cmd1` fails. Exit status is 1.
- `"x"` Quotes specified character `x`.
- `'xxx'` Quotes specified character string `xxx`, including special characters: \ ' \$.
- `"xxx"` Quotes specified character string `xxx`, excluding \ ' \$.
- `(cmd)` Executes `cmd` in a subshell.

### Input/Output Redirection

- > *file* Redirects standard output to *file*.
- < *file* Redirects standard input from *file*.
- >> *file* Redirects standard output and appends it to *file*.
- << *word* Reads standard input until it encounters any line containing only *word*.

### Input/Output Modifiers

- | Override pipeline.
- & Redirects standard error output also to specified *file*.

### File Name Generation

- ? Matches any single character.
- \* Matches any string of characters, including a null string.
- [*xyz*] Matches any of the enclosed characters (*xyz*). There is an error if no match occurs.
- name* Matches specified user's (*name*) home directory. Default is to match your home directory.
- {*x,y,z*} Matches any of the enclosed characters, preserving specified order, without errors.

### Variable Substitution

- \$name* Substitutes the value of a variable *name* for *\$name*.
- \$name[n]* Substitutes the value of the *n*th member of *\$name*.
- \$names...* Substitutes the values of each through *nth* members of *\$names*.
- \$#name* Substitutes the number of words in the value for the variable for *\$#name*.
- \$0* Substitutes *name* of file from which command input is read for *\$0*.

## Shell Commands

|                                    |                                                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <code>&lt;CTRL&gt;C</code>         | Stops current job.                                                                                                           |
| <code>alias (name) [string]</code> | Sets string alias for name. Without the string, displays alias for name. Without both name and string, displays all aliases. |
| <code>alias</code>                 | Displays current memory usage.                                                                                               |
| <code>bg (%n)</code>               | Puts specified job (%n) in background.                                                                                       |
| <code>break</code>                 | Resumes execution after closed foreach or while statement.                                                                   |
| <code>cd [name]</code>             | Changes working directory to named directory.                                                                                |
| <code>continue</code>              | Continues execution of closed foreach or while statement.                                                                    |
| <code>dirs</code>                  | Prints names in current directory stack.                                                                                     |
| <code>echo [-n] [str]</code>       | Repeats each argument in specified list with newline at the end, unless -n.                                                  |
| <code>eval arg...</code>           | Repeats and executes each specified argument.                                                                                |
| <code>exec cmd</code>              | Executes cmd in place of current shell.                                                                                      |
| <code>exit</code>                  | Quits current shell.                                                                                                         |
| <code>fg (%n)</code>               | Puts specified job (%n) in foreground.                                                                                       |
| <code>glob var</code>              | Similar to echo, but no escapes or null delimiters.                                                                          |
| <code>grep string</code>           | Transfers attention to string.                                                                                               |
| <code>hashstat</code>              | Displays hash table statistics.                                                                                              |
| <code>history</code>               | Displays history list.                                                                                                       |
| <code>jobs</code>                  | Displays status of active jobs.                                                                                              |
| <code>kill -sig job</code>         | Sends signal to the job. The default signal is SIGTERM. Kill -l displays the signals.                                        |
| <code>limit</code>                 | Sets job limits.                                                                                                             |
| <code>login</code>                 | Invokes shell/login in place of login shell.                                                                                 |
| <code>logout</code>                | Terminates login shell.                                                                                                      |

|                            |                                                                                             |
|----------------------------|---------------------------------------------------------------------------------------------|
| <b>newgrp</b>              | Changes group identification.                                                               |
| <b>nice</b>                | Alters execution priority.                                                                  |
| <b>nobuap</b>              | Ignores hangups.                                                                            |
| <b>notify</b>              | Notifies of job completion.                                                                 |
| <b>onintr</b>              | Specifies interrupt handling.                                                               |
| <b>popd [+n]</b>           | Removes top or nth entry from directory stack.                                              |
| <b>pushd</b>               | Exchanges top two elements on directory stack.                                              |
| <b>pushd name</b>          | Changes directory to name and pushes name on directory stack.                               |
| <b>rehash</b>              | Recomputes command location hash table.                                                     |
| <b>repeat n cmd</b>        | Repeats cmd n times.                                                                        |
| <b>set [name] [string]</b> | Set shell variable (name) to string. Default is to display all variable settings.           |
| <b>setenv name string</b>  | Set environment variable (name) to string.                                                  |
| <b>shift</b>               | Shifts arg list left one position.                                                          |
| <b>source name</b>         | Reads commands for current shell from name.                                                 |
| <b>stop [%n]</b>           | Stops specified job (%n). Default is to stop current job.                                   |
| <b>suspend</b>             | Stops current shell.                                                                        |
| <b>time [cmd]</b>          | Displays summary of execution times for cmd. Default is to display times for current shell. |
| <b>umask mode</b>          | Turns off specified permission bits (mode) on all created files.                            |
| <b>wait</b>                | Waits for background jobs.                                                                  |
| <b>%n</b>                  | Recreates specified stopped job (%n).                                                       |
| <b>&amp;</b>               | Displays value of all shell variables.                                                      |

## SCCS Commands

`scs command [command options] [file] level`

### Commands

`admin` - Creates and administers SCCS files.

- `a` Adds user *i* (logged in list of those permitted to make changes to SCCS files).
- `d` Deletes specified SCCS flag *i* (delete from file).
- `e` Erases user *i* (logged in list of those permitted to make changes to SCCS files).
- `f` Fuses on specified flag *i* (- *iflag*).
- `h` Checks structure of SCCS file.
- `i` Creates using specified file *i* (*leave*) an initial contents.
- `m` Inserts specified modification request numbers *i* (insert) into SCCS file.
- `n` Creates new SCCS file.
- `r` Indicates initial delta release number *i* (*rSID*). Used only with *i* keystring. Default is 1.1.
- `t` Replaces descriptive text with contents of specified file *i* (- *text*).
- `y` Inserts specified text *i* (- *comment*) as initial comment.
- `z` Relinks the SCCS file structure.

Admin flags (used with *i* and *d* options).

- `b` Allows branches.
- `ceol` Retains highest release by the `get` command for editing (must be a positive number no higher than 9999, the default number).
- `efloor` Retains lowest release by the `get` command for editing (must be a positive number between 0 and 9999). Default is 1.
- `rSID` Sets default delta version number (*do*) for `get` or `edit` commands.

- i Treats "no id keywords" as a fatal error.
  - j Allows multiple, concurrent updates to the same version of any SCCS file, using the get command for editing.
  - list Specifies list of releases to which deltas can no longer be made. (See admin(1) for syntax.)
  - n Creates a null delta in any release that is skipped when a delta is made in a new release. Example: Making delta 5.1 after 2.7 skips releases 3 and 4. These are created but are null and serve as anchor points for branch deltas.
  - qtext Substitutes user definable text for all occurrences of the skip% keyword in SCCS file text retrieved by get.
  - module Substitutes module name of the SCCS file for all occurrences of the %M% keyword in file text retrieved by get. Default is name of the SCCS file with the leading s. removed.
  - v.pgm Prompts for modification request (MR) numbers as the reason for creating a delta.
  - type Module type.
- etc - Changes etc's commentary
- m,modid Adds or deletes specified modification numbers (-mfile). Must be used with -r option.
  - rSID Indicates delta version number.
  - ycomment Replaces comments already existing for the delta specified by the -r keyword.
- check - Displays information only about files being edited and returns exit status. (Similar to info.)
- clean Remove recreatable files.

**qcmsh** - Combines deltas.

- c Preserves specified deltas (- cfile).
- o Accesses reconstructed files at release of delta.
- p Oldest delta to preserve (- pSID).
- u Generates script that reports: file name, size (after), size (before), and percentage changed.

**rmcd** - Removes SCCS file.

**dedelt** - Produces a delta and gets new g-file for edit.

**delget** - Produces a delta and gets new g-file.

**delta**

- g Specifies list of deltas to be ignored (- gfile).
- m Indicates modification request number (- mnumber).
- n Does not delete edited file.
- p Prints differences before and after deltas are applied.
- r Indicates new delta release number (- rSID).
- s Suppresses messages.
- y Creates delta with specified commentary (- ycomment).

**edit** - Get SCCS file for editing.

- b Creates a branch.
- i Includes specified list of deltas (- idelta).
- r Delta specific version (- rSID) for editing.
- x Resolves specified list of deltas (- xdelta).

**fix** - Removes delta and edits earlier version.

**get** - Get copies of SCCS files.

- s Retrieves specified delta sequence number (- ssequence).
- b Gets delta from branch. Used with - a.
- c Does not apply deltas created after specified date time (- cdate) in the form YYMMDDTHHMMSS TT.

- e Gets specified delta version for editing. Same as edit.
- k Suppresses reading text from SCCS file.
- i Includes specified list of deltas (-ldac).
- k Does not expand ID keywords.
- l Writes delta summary to l-file.
- m Precedes each line with delta version number.
- n Precedes each line with identification keyword.
- p Writes text to stdout.
- r Gets specified version number (-rSID).
- s Suppresses all messages.
- t Gets most recent (top) delta.
- x Excludes specified list of deltas (-xldac).

**info** - Displays information about files being edited

- b Ignores branches
- n Displays information about files edited by named user (-name).

**ps** - Displays information from SCCS files.

- a Displays information for both existing and removed deltas
- d Displays information specified by dataspec (-dataspec).
- e Displays information for all deltas created before and including specified delta (-eSID).
- l Displays information for all deltas created including and after specified delta (-lSID).
- v Indicates delta version number (-v).
- t Prints descriptive text.

**prt** - Display changes made to SCCS files.

**rmdel** - Removes deltas

- r Removes specified version (-rSID).

**srcdiff** - Display differences between SCCS files.

- p Pipes output through pr command.
- r Specifies first delta (-rSID1).
- s Specifies second delta (-rSID2).

- **n** Specifies segment size for **hdiff** (- **sn**).

**showhelp** - Displays help for SCCS error messages.

**sell** Displays only names of SCCS files being edited.

**unedit** - Undo SCCS edit command.

**unset** - Undo SCCS get command.

- **n** Retains copy of SCCS file
- **r** Indicates delta version number (- **rSID**).
- **s** Suppresses all messages.

**val** - Validates SCCS files.

- **m** Compares specified value (- **message**) with **%M%** keyword
- **v** Indicates delta version number (- **rSID**).
- **s** Suppresses all error messages
- **y** Compares specified type (- **type**) with **%Y%** keyword

**what** Displays SCCS ID keywords in object files.

## mail program

- `mail [-v] [-i] [-d] [-s subject] [user]`  
`mail [-v] [-f] [-n] [-f filename]`  
`mail [-v] [-d] [-n] [-u user]`
- f Checks mbox or the specified file instead of your normal account for mail.
  - i Ignores all terminal generated interrupt signals.
  - n Ignores MailfileMailbox during startup.
  - s subject Uses specified subject for mail header.
  - u user Checks specified user's account for mail.
  - v Displays verbose delivery information.

## Write and Send Commands

- a Sets or lists aliases.
- all Lists addressees whose messages are not to be sent.
- da Deletes one message or range of messages. (For example `da-10` deletes messages 1 through 10. Default is to delete current message.)
- dp or dl Deletes current messages and prints next message.
- e Edit messages with ex editor, unless the `mailrc` file set `editor` command specifies another editor.
- ex or w Exits from mail, with no modifications.
- m Sends mail to current message sender. Use `m name` to specify another.
- q Quite mail session.
- R Routes reply to originator of message only. Does not reply to other recipients of the original message.
- r or respond Routes reply to sender and all who received message.
- so Sets options in form of "option=value" or "option". If no argument is given,

|                 |                                                                              |
|-----------------|------------------------------------------------------------------------------|
|                 | displays all variable names.                                                 |
| <b>u</b>        | Undeletes all messages marked for deletion by the <b>d</b> command.          |
| <b>un</b>       | Undeletes numbered message.                                                  |
| <b>unalias</b>  | Takes list of names defined by alias commands and cancels the list of users. |
| <b>unset</b>    | Disables values assigned to option. The inverse of <b>set</b> .              |
| <b>v</b>        | Edits messages with vi editor.                                               |
| <b>!command</b> | Escapes to a shell, then executes the given shell command.                   |

## Read Commands

|                   |                                                                                                                                                                                                                                                                                                               |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>fb or from</b> | Displays numbered message header.<br>f displays current message header.<br>* displays all message headers.                                                                                                                                                                                                    |
| <b>h</b>          | Lists current range of headers, in message group determined by the speed of your terminal. Terminals with a baud rate of < 1200 list 5 headers, 10 if the baud rate is 1200, and 20 if the baud rate is > 1200. The default range can be over-ridden by the screen command. It begins with message <b>n</b> . |
| <b>help</b>       | Displays summary of mail commands. Identical to <b>?</b> command.                                                                                                                                                                                                                                             |
| <b>ignore</b>     | Eliminates selected header lines on displayed message. When used by itself, ignore displays the current list of ignored header fields.                                                                                                                                                                        |
| <b>n</b>          | Displays next message.                                                                                                                                                                                                                                                                                        |
| <b>p</b>          | Displays messages on terminal. Identical to <b>t</b> .                                                                                                                                                                                                                                                        |
| <b>P</b>          | Displays messages on terminal plus extensive header information. Identical to <b>T</b> .                                                                                                                                                                                                                      |

|          |                                                                                                                                                    |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| gbr      | List size, in characters, of current message in mail directory. size* gives size of all messages.                                                  |
| g        | Reads mail commands from a file.                                                                                                                   |
| t        | Displays messages on terminal.<br>Identical to p.                                                                                                  |
| T        | Displays message on terminal plus extensive header information. Identical to P.                                                                    |
| lgn      | Displays a number of top lines of message n, as determined by the variable <i>toplines</i> . Default is 5.                                         |
| x        | Displays windows of message headers. See h and screen commands for window size. x or x+ moves forward to next window; x- moves to previous window. |
| -        | Displays next message in sequence.                                                                                                                 |
| -        | Returns to previous message.                                                                                                                       |
| ?        | Displays summary of mail commands.                                                                                                                 |
| <RETURN> | Displays next message in sequence.                                                                                                                 |

### More Commands

|           |                                                                                                                                                                                                                                                                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cd        | Changes directory to that specified. Default is login directory.                                                                                                                                                                                                                                                                                   |
| cc n file | Copies message n to file and does not delete that message from mail list.                                                                                                                                                                                                                                                                          |
| cc n      | Holds message n in system mail box. bu* holds all messages.                                                                                                                                                                                                                                                                                        |
| u or file | Switches to new mail file or folder. Identical to folder command.                                                                                                                                                                                                                                                                                  |
| folder    | Switches to new mail file or folder. With no argument, tells you which file you are currently reading. With argument given, writes changes made to current file and reads in new file. Conventions used are: \$, previous file; %, system mailbox; \$user, user's system mailbox; &, your mailbox file; + folder, a file in your folder directory. |

|                 |                                                                     |
|-----------------|---------------------------------------------------------------------|
| <b>folders</b>  | Lists names of folders in folder directory.                         |
| <b>mhux</b>     | Sends message to <i>mhux</i> file after you quit mail session.      |
| <b>po</b>       | Preserve message in system mailbox. Identical to <b>ba</b> command. |
| <b>q [file]</b> | Save messages in a named file.                                      |
| <b>sh</b>       | Invoke <i>/bin/sh</i> shell.                                        |
| <b>w file</b>   | Writes message to a given file. Identical to <b>o</b> command.      |

### Hide Escape Commands

Hide escapes are only recognized at the beginning of lines and are used to perform special functions when composing messages.

|                   |                                                                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>b name</b>     | Sends blind carbon copy to specified user name. (Name will not be included in cc: list)                                              |
| <b>c name</b>     | Sends carbon copy to specified user (name).                                                                                          |
| <b>d</b>          | Reads mail from <i>dead.letter</i> file.                                                                                             |
| <b>e</b>          | Edits messages with <i>ex</i> editor.                                                                                                |
| <b>f message</b>  | Reads <i>message</i> into message being sent.                                                                                        |
| <b>h</b>          | Edits the message header.                                                                                                            |
| <b>m message</b>  | Reads <i>message</i> into message being sent, shifted one tab space to the right.                                                    |
| <b>p</b>          | Prints current message.                                                                                                              |
| <b>q</b>          | Quits current message, and saves contents in <i>dead.letter</i> file. (Be sure that <i>noauto</i> is not set in <i>mailrc</i> file.) |
| <b>r filename</b> | Sends file named into the message.                                                                                                   |
| <b>s string</b>   | Substitutes string for current subject field.                                                                                        |
| <b>t name</b>     | Adds specified user (name) to direct recipient list.                                                                                 |
| <b>v</b>          | Edits message with <i>vi</i> editor.                                                                                                 |
| <b>w filename</b> | Writes message to file.                                                                                                              |

|                      |                                                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>^end</code>    | Pipes message to <code>end</code> as a filter.                                                                                                                      |
| <code>^string</code> | Inserts text string in the message prefixed by a single <code>^</code> . If the escape character has been changed, it must be doubled in order to send the message. |
| <code>^exec</code>   | Executes specified command ( <code>cmd</code> ).                                                                                                                    |
| <code>^!</code>      | Executes mail commands. (Example:<br>100 prints out message number 100.)                                                                                            |
| <code>^Y</code>      | Displays brief summary of <code>^!</code> commands.                                                                                                                 |

### Binary Variables

These options are controlled with the `set` and `unset` commands. Check first to see whether or not they are `set`.

|                        |                                                                                                                           |
|------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <code>append</code>    | Appends messages to end of <code>mbx</code> file.                                                                         |
| <code>ask</code>       | Prompts for subject header.                                                                                               |
| <code>askrc</code>     | Prompts for rc/rcn copy responses.                                                                                        |
| <code>ccnoprnt</code>  | Causes <code>d</code> command to act like <code>cc</code> command.                                                        |
| <code>dot</code>       | Interprets a period alone on a line as the terminator of the message is sent.                                             |
| <code>hold</code>      | Causes messages to be held in system mailbox by default.                                                                  |
| <code>ignore</code>    | Ignores interrupts from terminal, such as <code>CTRL-C</code> and <code>CTRL-D</code> , when <code>set ignore</code> = 1. |
| <code>ignoreeof</code> | Refuses to accept <code>CTRL-D</code> as the end of a message.                                                            |
| <code>mtcoo</code>     | Includes self if in distribution list.                                                                                    |
| <code>msgpennpt</code> | Prompts for message text and indicates how to terminate the message, when sending mail.                                   |
| <code>nosave</code>    | Prevents the copying of an aborted message to the <code>dead.letter</code> file.                                          |
| <code>save</code>      | Saves interrupted messages in <code>dead.letter</code> file.                                                              |

**quiet**            Does not print mail version.  
**verbose**        Puts mail into verbose mode, displaying  
 messages on the terminal when you send  
 a message.

#### String Variables

**EDITOR**        Contains path for default text editor  
 (%E).  
**SHELL**        Contains path for shell.  
**VISUAL**        Contains path for vi editor (%V).  
**cat**            Determines how long a message must be  
 before *more* is used to read it.  
**escape**        Contains default escape character.  
**folder**        Contains name of directory to use for  
 storing folders of messages. If name  
 begins with /, it is considered to be an  
 absolute path name; otherwise, the  
 directory is found relative to the home  
 directory.  
**record**        Contains path for file in which all  
 outgoing mail is saved.  
**screen**        Defines window size for the h and z  
 commands. Example: set screen = 18  
 causes mail to display message headers  
 in groups of 18.  
**toplines**      Contains number of lines to print for  
 the top command.

## **nroff and troff Primitives**

**NOTE** nroff is not supported by Digital Equipment Corporation.

### **Font and Character Control Primitives**

- .ps *n*** Sets point size to *n* (troff only).
- .ft *n*** Changes font to *n* (troff only).
- .ul *n*** If nroff, underline text *n* input lines. If troff, italicize text *n* input lines.

### **Page Control Primitives**

- .pl + *n*** Sets page length to *n*. Default measure is *n* lines.
- .bp + *n*** Begins new page and numbers page *n*.
- .pn + *n*** Numbers next page *n*.
- .ne *n*** Begins new page if *n* vertical space does not fit on current page. Default measure is *n* lines.
- .po + *n*** Sets left margin (page offset) to + *n*. Default measure is *n* cms.

### **Text Filling, Adjusting, Centering Primitives**

- .br** Forces break in text.
- .nf** Does not fill or adjust text.
- .fi** Begins text filling.
- .na** Does not adjust text (right-left margin).
- .ad *n*** Adjusts text with mode *n*.
- .ce *n*** Centers text *n* input lines.

### **Vertical Spacing Primitives**

- .ls *n*** Sets line spacing: places *n* - 1 blank lines between output text lines.
- .sp + *n*** Sets vertical spacing: negative *n* spaces backwards. Default measure is *n* lines.

### **Line Length and Indenting Primitives**

- .ll + *n*** Sets line length to *n*. Default measure is *n* lines.

- in** - *n* Indents text by *n*. Default measure is 8 ems.
- it** - *n* Indents next output line *n*. Default measure is 8 ems.

#### Macros, Strings, Number Registers Primitives

- de *xx*** Defines macro *xx*. (Characters *xx* must be separate lines ending definition.)
- da *xx string***  
Defines specified string (*xx*) to *string*.  
Calls contents of one-character string *x*.  
Calls contents of two-character string *xx*.
- nr *r xx*** Sets specified value (*xx*) to number register *r*.
- rx** Calls contents of one-character register *x*.
- rxr** Calls contents of two character register *xx*.

#### Conditional Primitives

- if *x ends*** Executes specified commands (*ends*), if condition *x* is true.
- if *!x ends*** Executes specified commands (*ends*), if condition *x* is false.
- if *n ends*** Executes specified commands (*ends*), if *n* > 0.
- if *!n ends*** Executes specified commands (*ends*), if *n* <= 0.
- if '*str1*'*str2*' ends** Executes specified commands (*ends*), if *str1* is identical to *str2*.
- if '*str1*'*str2*' ends** Executes specified commands (*ends*), if *str1* is not identical to *str2*.
- if *c ends*** Constitutes "if" portion of "if...else" statement. Similar if statements above.
- el ends** Constitutes "else" portion of "if...else" statement.

### Input/Output Options

These options may appear in any order but must be used in the general form:

*macro options file*

- *ol**N* Prints only pages whose page numbers appear in the comma-separated list of numbers and ranges. Range *N M* means pages *N* through *M*; an initial -*N* means from the beginning of page *N*; and a final *M*- means from *N* to the end.
- *nN* Number the first generated page *N*.
- *sN* Stop printer every *N* pages to allow paper loading or changing, then resume printing upon receipt of a newline. Default is 1.
- *macro* Prepend macro file *user/macro/macro* to the input files.
- *roN* Set register *r* (one-character) to *N*.
- *j* Read standard input after the input files are exhausted.
- *q* Inverts the *simultaneous* input/output mode of the *rd* request.
- *Term* Proper output for the specified terminal (*none*).
- *e* Produce equally spaced words in adjusted lines, using full terminal resolution.
- *h* Use output tabs during horizontal spacing to speed output and reduce output character count. Tabs are assumed to be 8 nominal character widths.

## **- ms Macro Package**

NOTE: Trail is not supported by Digital Equipment Corporation.

### **Format Macros**

- .LC** Specifies 1 column format.
- .2C** Specifies 2 column format.

### **Paragraphs**

- .IP** Begins indented paragraph.
- .LP** Begins left-adjusted paragraph.
- .IP xx n** Begin indented paragraph: indents body *x* spaces and prints lag (*xx*) in margin.

### **Section Head Macros**

- .NH** Specifies numbered section heading.
- .SH** Specifies unnumbered section heading.

### **Indent and Display Macros**

- .RS** Increases relative indent.
- .RE** Ends relative indent.
- .DS x** Begins displayed text: indented but not tiled. Values for *x* are: L (left-adjusted text) or C (centered text).
- .DR** Ends displayed text.

### **Keep Macros**

- .KB** Begins block of text to be kept together.
- .KW** Begins forcing keep: text kept together as a unit, but output only when there is adequate space.
- .KK** Ends keeps.

### **Footnote**

- .FS** Begins footnote text.
- .FE** Ends footnote.

### **Font and Point Size Macros**

- .I** Begins italics (trnf). Begins underlined text (nraf).

|     |                                      |
|-----|--------------------------------------|
| .B  | Begin bold text (10bf).              |
| .R  | Begin Roman type (default).          |
| .SM | Changes to smaller point size (8pt). |
| .LG | Changes to larger point size (10pt). |
| .NL | Returns to normal point size (10pt). |
| .UL | Underlines specified word.           |

#### eqn and tbl Preprocessors Macros

|       |                                      |
|-------|--------------------------------------|
| .EQ   | Begins equation.                     |
| .EN   | Ends equation.                       |
| .TS   | Begins table.                        |
| .TS H | Begins table with repeated headings. |
| .TA   | Ends heading section of table.       |
| .TE   | Ends table.                          |

#### Macros for Papers

|     |                                                                    |
|-----|--------------------------------------------------------------------|
| .DA | Prints date on each page.                                          |
| .RP | Begins released paper format: cover sheet with title and abstract. |
| .TL | Specifies title on following line(s).                              |
| .AU | Specifies author(s) on following line(s).                          |
| .AI | Specifies author's institution on following lines.                 |
| .AB | Begins abstract.                                                   |
| .AK | Ends abstract.                                                     |
| .ND | Does not print date.                                               |

## **mh - Message Handler**

Programs to send, receive, save, and retrieve messages

**pli** - list mail aliases

### **Syntax**

**pli** [-alias *aliasfile*] [-list] [-nohtml] [-normalize]  
[-nonormalize] [-user *username*] [-**aliases** *aliases ...*]  
[-help]

**anno** - annotate messages

### **Syntax**

**anno** [+*folder*] [*msg*] [-component *field*] [-inplace]  
[-noinplace] [-text *body*] [-help]

**burst** - explode digests into messages

### **Syntax**

**burst** [+*folder*] [*msg*] [-inplace] [-noinplace] [-quiet]  
[-noquiet] [-verbose] [-noverbose] [-help]

**comp** - compose a message

### **Syntax**

**comp** [+*folder*] [*msg*]  
[-draftfolder *folder*] [-draftmessage *msg*]  
[-nodraftfolder] [-editor *editorname*] [-noedit]  
[-file *filename*] [-form *formfile*] [-new] [-rmmsg]  
[-whatnowproc *program*] [-whatnowproof] [-help]

**dist** - redistribute a message to additional addresses

#### Syntax

**dist** [- *folder*] [*msg*] [-*annotate*] [-*noannotate*]  
[-*draftfolder* +*folder*] [-*draftmessage* *msg*]  
[-*nodraftfolder*] [-*editor* *editorname*] [-*noedit*]  
[-*form* *formfile*] [-*inplace*] [-*noinplace*]  
[-*whatnowproc* *process*] [-*nowhatnowproc*] [- *help*]

**folder** - set folder or display current foldername

#### Syntax

**folder** (+*foldername*) [*msg*] [-*all*] [-*fast*] [-*nofast*]  
[-*header*] [-*noheader*] [-*pack*] [-*nopack*] [-*recurse*]  
[-*norecurse*] [-*total*] [-*nototal*] [-*print*] [-*noprint*] [-*list*]  
[-*nohist*] [-*push*] [-*pop*] [- *help*]

**folders** - list folders and contents

#### Syntax

**folders** (*folder*) [*msg*] [-*fast*] [-*nofast*] [-*header*]  
[-*noheader*] [-*pack*] [-*nopack*] [-*recurse*] [-*norecurse*]  
[-*total*] [-*nototal*] [-*print*] [-*noprint*] [-*list*] [-*nohist*]  
[-*push*] [-*pop*] [- *help*]

**form** - forward messages

#### Syntax

**form** [- *folder*] [*msg*] [-*annotate*] [-*noannotate*]  
[-*draftfolder* *FT+folder*] [-*draftmessage* *msg*]  
[-*nodraftfolder*] [-*editor* *editorname*] [-*noedit*]

[-filter *filterfile*] [-form *formatfile*] [-format] [-autoformat]  
 [-inplace] [-noinplace] [-whatnewspens *program*]  
 [-newsharnewspens] [-digest *user*] [-issue *number*]  
 [-volume *number*] [-help]

**inc** - Incorporate new mail

### Syntax

inc [-*filtername*] [-*edit auto-file*] [-*noedit*]  
 [-*changeuser*] [-*nochangeuser*] [-*form formatfile*]  
 [-*format string*] [-*file name*] [-*silent*] [-*quiet*]  
 [-*runonce*] [-*noirunonce*] [-*width column*] [-help]

**mark** -- mark messages

### Syntax

mark [+*foldername*] [*userid*] [-*sequence name...*] [-*add*]  
 [-*delete*] [-*list*] [-*public*] [-*invisible*] [-*zero*] [-*nozero*]  
 [-help]

**mh** -- Message Handler

**mhl** -- produce formatted listings of MH messages

### Syntax

[*maildirfile*]/*mh/mhl* [-*help*] [-*nohelp*] [-*delete*] [-*noquiet*]  
 [-*folder -foldername*] [-*form formatfile*] [-*length lines*]  
 [-*width column*] [-*marginize cygwin*] [-*nozeroerror*]  
 [*files...*] [-help]

**mhmail** – send or read mail

#### Syntax

**mhmail** [*path* ...] [-body *body*] [-cc *addres* ...]  
[ *from* *addr*] [-subject *subject*] [-help]

**mhpath** – print full pathnames of MH  
messages and folders

#### Syntax

**mhpath** [- *foldername*] [*target*] [-help]

**msgchk** – check for messages

#### Syntax

**msgchk** [-nodate] [-notify *notification*] [*name* ...]  
[-help]

**msh** – MH shell

#### Syntax

**msh** [-prompt *string*] [-xum] [-onewin] [-toproc]  
[-notoproc] [*file*] [-help]

**next** – show the next message

#### Syntax

**next** (+ *folders*) [-header] [-noheader] [-showproc  
program] [-showproc program] [-showproc  
program] [-showproc program] [-help]

**packf** - compress a folder into a single file

### Syntax

**packf** [- *folder*] [*image*] [- file *name*] [- help]

**pick** - select messages by content

### Syntax

**pick** [- *folder*] [*image*] [- and ...] [- or ...] [- not ...]  
[- *thence* ... - *thru*] [- *search*] [- - *component* *pattern*]  
[- *after* *date*] [- *before* *date*] [- *datefield* *field*]  
[- *sequence* *name* ...] [- *public*] [- *no**public*] [- *zero*]  
[- *nonzero*] [- *list*] [- *unlist*] [- *help*]

**prev** - show the previous message

### Syntax

**prev** [- *foldername*] [- *header*] [- *noheader*]  
[- *showproc* *program*] [- *no**showproc*] [- *switches* for  
*showproc*] [- *help*]

**prompter** - prompting editor front-end

### Syntax

**prompter** [- *erase* *ch*] [- *kill* *ch*] [- *prepend*] [- *no**prepend*]  
[- *rapid*] [- *no**rapid*] *file* [- *help*]

**restore** - incorporate new mail  
asynchronously

## Syntax

revstore [+folder] [-create] [-overwrite] [-sequence number]  
[-public] [-unpublic] [-send] [-nocred] [-help]

**refile** - file message in other folders

## Syntax

refile [msg#] [-draft] [-link] [-unlink] [-preserve]  
[-nopreserve] [-src +foldername] [-file filename] +folder  
[-help]

**reply** - reply to a message

## Syntax

reply [-folder] [msg] [-annotate] [-nonannotate]  
[-cc address(es)] [-open address(es)]  
[-draftfolder +foldername] [-draftmessage msg]  
[-modrslbluser] [-editor editor] [-modif]  
[-for +foldername] [-filter filterfile] [-form formfile]  
[-format] [-noformat] [-inline] [-noinline] [-query]  
[-noquery] [-width column] [-whatnowproc program]  
[-nowhatnowproc] [-help]

**rnf** - remove folder

## Syntax

rnf [+foldername] [-interactive] [-noninteractive] [-help]

**rmm** - remove messages

## Syntax

**cat** [ *filter* ] [ *msg* ] [ -help ]

**scan** - produce a one-line-per-message  
scan listing

## Syntax

**scan** [ *filter* ] [ *msg* ] [ -clear ] [ -noclear ]  
[ -form *format/fmt* ] [ -format *string* ] [ -header ] [ -noheader ]  
[ -width *columns* ] [ -help ]

**send** - send a message

## Syntax

**send** [ -alias *alias/fmt* ] [ -draft ] [ -draftfolder + *foldername* ]  
[ -draftmessage *msg* ] [ -nodraftfolder ] [ -filter *filterfile* ]  
[ -nofilter ] [ -format ] [ -noformat ] [ -forward ] [ -noforward ]  
[ -msgid ] [ -nomsgid ] [ -push ] [ -noack ] [ -verbose ]  
[ -powerline ] [ -watch ] [ -watchid ] [ -width *columns* ]  
[ file ... ] [ -help ]

**show** - show (list) messages

## Syntax

**show** [ *filter* ] [ *msg* ] [ -draft ] [ -header ] [ -noheader ]  
[ -aliasproc *program* ] [ -noaliasproc ] [ switches for  
aliasproc ] [ -help ]

**slocal** - MM receive-mail hooks

## Syntax

**show** **%HOME**/mail/delivery [-form *format*]  
[switches for *postproc* address ...] [-help]  
/usr/newlib/mh/evpack *file* [-help]  
/usr/newlib/mh/evlly [*command* ...] [-help]

## sortm - sort messages

## Syntax

**sortm** [ *folder* *message*] [-datafile *path*] [-verbose]  
[-noverbose] [-help]

## whatnow - prompting front-end for send

## Syntax

**whatnow** [ *draftfolder* - *folder*] [-draftmessage *msg*]  
[-nocheckfolder] [-editor *editorname*] [-noedit]  
[-prompt *string*] [*file*] [-help]

## whom - report to whom a message would go

## Syntax

**whom** [-alias *aliasfile*] [-check] [-nocheck] [-draft]  
[-draftfolder *f*] [*folders*] [-draftmessage *msg*]  
[-nodraftfolder] [*file*] [-help]

## Other Section 1 Commands 2

This section summarizes the remaining commands from Section 1 of the Reference Pages.

### 2780e - spooler for the IBM 2780 emulator

#### Syntax

2780e [-m] [-a] [-q] [-b] [-t] [-S/R] [-f] [-o] file...  
[-o file...]

#### Options

- f        Waits for new files to be received as output from job and gives default file names in the form *Ruseridoid*
- a        Send file as priority job.
- b        Transmits the file to an IBM system that accepts multiple record transmission.
- m        Notifies user by mail that file was sent and output was received.
- o        Name output files with specified file names.
- q        Prepares the file for transmission and places it in */usr/spool/rjc* but

- s                      Sends contents of file to the IBM system as a sign-on card.
- t                      Sends data in transparent mode.

## 3780e - spooler for the IBM 3780 emulator

### Syntax

3780e [-C] [-m] [-s] [-q] [-t] [-Sfile] [-#name] file...  
[-v file]

### Options

- s                      Waits for main file to be received as output from job and gives default file names in the form Rxxxxxxid.
- a                      Send file as primary job.
- b                      Transmits the file to an IBM system that accepts multiple record transmission.
- C                      Prevents the compression of spaces when files are sent.
- m                      Notifies user by mail that file was sent and output was received.
- o                      Name output files with specified file names.
- q                      Prepares the file for low emission and places it in /usr/spool/qm, does not call 2780d to transmit.
- S                      Sends contents of file to the IBM system as a sign-on card.
- t                      Sends data in transparent mode.

**-th** Transmits the file to an IBM system that accepts multiple 80-column card records in transparent mode.

## **addbib - create or extend bibliographic database**

### **Syntax**

**addbib** [ **p** *promptfile* ] **-a** *database*

### **Options**

- a** Suppresses prompting for an abstract.
- p** Causes use of a new prompting skeleton, defined in *promptfile*.

## **apply - apply a command to a set of arguments**

### **Syntax**

**apply** [ **-a** ] [ **-u** ] *command* *args ..*

## **apropos - locate commands by keyword lookup**

### **Syntax**

**apropos** *keyword*

## **ar - archive and library maintainer**

## Syntax

**ar** *key* [*pathname*] *file name...*

## Options

- d** Deletes the named files from the archive file.
- m** Moves the named files to the end of the archive.
- p** Prints the named files in the archive.
- q** Appends the named files to the end of the archive file.
- r** Replaces the named files in the archive file.
- t** Prints a table of contents of the archive file.
- x** Extracts the named files.
- z** Tells the **ar** command that new files should be placed after *pathname*.
- b** Tells the **ar** command that new files should be placed before *pathname*.
- v** Suppresses the message that is normally produced when *file* is created.
- i** Tells the **ar** command that new files should be placed before *pathname*.
- l** Places files in the local directory instead of the temp directory where they are normally placed.
- u** Resets the last-modified date to the date recorded in the archive.
- U** Replaces only those files with last modified dates later than the archive files.
- w** Gives a file-by-file description of the making of a new archive file from the old archive and the constituent files.

## **as - assembler**

### **Syntax**

**as** [-d123] [-J] [-W] [-V] [-I] [-R] [-t *directory*] [-o *outfile*] [*command...*]

### **Options**

- d                Specifies number of bytes for offsets that involve forward or external references and have sizes unspecified in assembly language.
- J                Uses long branches to resolve jumps when byte-displacement branches are insufficient.
- L                Save defined labels beginning with 'l', which are normally discarded.
- o                Specifies the name of the output file.
- R                Marks initialized data segments read-only, by concatenating them to the text segments.
- t                Specifies a directory other than the default /tmp to receive the temporary file.
- V                Uses virtual memory rather than a temporary file for immediate strings.
- W                Do not complain about errors.

**at, batch - execute commands at a later time**

### Syntax

```
at time [day] [file]
at -r job...
at -l [job]
batch file
```

### Options

|    |                                                   |
|----|---------------------------------------------------|
| -r | Resumes jobs previously scheduled by at, or batch |
| -l | Used to obtain or verify the job numbers.         |

## awk - pattern scanning and processing language

### Syntax

```
awk [-Fc] [-f prog] [-v var=val]
```

### Options

|        |                                              |
|--------|----------------------------------------------|
| -      | Used for standard input file.                |
| -Fc    | Sets interfield separator to named character |
| -fprog | Uses prog file for patterns and actions      |

## basename - strip directory names from pathname

### Syntax

```
basename string [suffix]
```

## **bc - interactive arithmetic language processor**

### **Syntax**

**bc** [-e] [-l] [file...]

### **Options**

- e                      Executes input only.
- l                      Name secondary precision math library.

## **bdiff - big file differential comparator**

### **Syntax**

**bdiff** *file1 file2* [-s] [-n]

### **Options**

- s                      Suppresses normal diagnostic messages.

## **biff - be notified if mail arrives and who it is from**

### **Syntax**

**biff** [*yn*]

### **Options**

- n                      Deactivates notification that mail has arrived.

**-y** Enables notification that mail has arrived.

## **binmail – send or receive mail among users**

### **Syntax**

*/bin/mail [-i [-i]] [person...]  
/bin/mail [+ [-i]] -f file*

### **Options**

**-i** Displays mail messages contained in the specified file (next argument) in place of your mailbox file.  
**-i** Notifies mail to continue after interrupts.

## **cal – print calendar**

### **Syntax**

*cal [month] year*

## **calendar – calendar reminder service**

### **Syntax**

*calendar [-]*

### **Options**

**-** Functions for every user who has a calendar file in his login directory.

**capasr** - prepares a DOTS or DDIF document for transport in the Mail system

### Syntax

**capasr** [-o -t] [-s[DOTS]] [filename]

### Options

- o Create an encapsulated DOTS bodypart from filename.
- t Write the message type of filename to standard output.
- sh Extract mail header lines from filename.
- sT Extract all text parts of filename to standard output.
- sD Extract all DOTS bodyparts from filename.

**cat** - concatenate and print data

### Syntax

**cat** [-b] [-e] [-n] [-s] [-t] [-u] [-v] [-w]

### Options

- b Ignores blank lines and precedes each output line with its line number.
- e Displays a dollar sign (\$) at the end of each output line.
- n Precedes all output lines (including blank lines) with line numbers.

- n Squeeze adjacent blank lines from output and single space output
- t Display non-printing characters (including tabs) in output
- u Unbuffers output
- v Displays non-printing characters (excluding tabs).

## **cb - C program beautifier**

### **Syntax**

**cb**

## **cc - C compiler**

### **Syntax**

**cc** *option*... *file*...

### **Options**

- f Specifies that computations involving only FLOAT numbers be done in single precision and not promoted to double.
- g Directs the compiler to produce additional symbol table information for GDB.
- O Uses the object code optimizer.

## **cd - change current directory**

### **Syntax**

**cd** *directory*

## **edoc - Compound document converter**

### **Syntax**

**edoc** [ *-s format* ] [ *-d format* ] [ *-O file* ] [ *-o outputfile* ] *inputfile*

### **Options**

- s Specifies the format of the input (source) file.
- d Specifies the format of the output (destination) file.
- O Names a file that contains the processing options to be applied during conversion.
- o Specifies the name of the output file.

## **eflow - generate C flow graph**

### **Syntax**

**eflow** [ *-r* ] [ *-ix* ] [ *-l* ] [ *-dnum* ] *file*

### **Options**

- d The num decimal integer indicates the depth at which the flow graph is cut off.
- l Includes names that begin with an underscore.
- ix Includes external and static data symbols.
- r Reverse the "canonicalize" relationship producing an inverted flow graph showing the callers of each function.

## **checknr - check nroff/troff files**

### **Syntax**

**checknr** [-a] [-C] [-a x1 y1 x2 y2 ... x n y n]  
[-a x1 x2 x3 ... x n] [file...]

### **Options**

- a Allows additional pairs of numbers to be added to the list.
- C Treats commands otherwise complained about as undefined.
- f Ignores  $\backslash$ f font changes
- s Ignores  $\backslash$ s font changes

## **chfn - change system finger entry**

### **Syntax**

**chfn** [*loginname*]

## **chgrp - change file group**

### **Syntax**

**chgrp** [-C] *group file...*

### **Options**

- f Reports only system and usage messages.

**chmod** - change file mode

**Syntax**

**chmod** *mode file...*

**chsh** - change login shell

**Syntax**

**chsh** *name [shell]*

**clear** - clear terminal screen

**Syntax**

**clear**

**cmp** - compare file data

**Syntax**

**cmp** [-l] [-s] *file1 file2*

**Options**

- l Long format: byte where difference occurs (decimal) and data differences (octal).
- s Suppresses normal output and displays return code only.

**col** - filter reverse line feeds

## Syntax

**col** [ *options* ]

## Options

- b Assume that the output device does not have backspacing.
- f Suppresses moving half lines to the next full line.
- h Suppresses conversion of white space to tabs.
- p Forces through unchanged any unknown escape sequences that are found in its input.
- x Suppresses conversion of white space to tabs (same as -b).

## **colcrt - filter nroff output for CRT previewing**

### Syntax

**colcrt** [- 1-21 ] /dev /

### Options

- Causes all underlining.
- 2 Causes half-lines to be printed, double spacing the output.

## **colrm - remove columns from a file**

### Syntax

**colrm** [ *startcol* [ *endcol* ] ]

## **comm - compare sorted data**

### **Syntax**

**comm [-123] file1 file2**

### **Options**

- 1 Suppresses column one: lines in file1 only.
- 2 Suppresses column two: lines in file2 only.
- 3 Suppresses column three: lines in file1 and file2.

## **compact, uncompact, ccat - compress and uncompress files, and cat them**

### **Syntax**

**compact [name...]**  
**uncompact [-name...]**  
**ccat [file...]**

## **compress, uncompress, zcat - compress and expand data**

### **Syntax**

**compress [-f] [-c] [-o] [-b bits] [name ...]**  
**uncompress [-f] [-v] [-c] [name  
...]**  
**zcat [name ...]**

### **Options**

- f Forces compression of names.
- c Makes compress/uncompress write to standard output.

- b Specifies the allowable bits limit.
- r Displays the percent reduction of each file.

## cp – copy file data

### Syntax

```
cp [-il [-r] file] file
    cp [-i] [-r] file... directory
```

### Options

- i Prompts user with the name of file whenever the copy will cause an old file to be overwritten.
- r Copies only to directories

## cpio – copy file archives in and out

### Syntax

```
cpio -o [keys]
    cpio -i [keys] [patterns]
    cpio -p [keys] directory
```

### Options

- i Copies files that match the specified pattern
- o Copies out the specified files.
- p Copies file into the specified directory.

## cpp -- the C language preprocessor

### Syntax

`Cppcpp [ option ... ] [ file [ file ] ]`

### Options

- B                Strips C++ style comments (begin with `/*` and end with newline).
- C                Passes along all comments, except those found on cpp directive lines.
- M                Generates dependency lists suitable for use with `make(1)` instead of the normal output.
- P                Preprocesses the input without producing the line control information used by the next pass of the C compiler.
- R                Permits recursion when a macro is expanded.
- Uname           Removes any initial definition of *name* where *name* is a reserved symbol that is predefined by the preprocessor.
- Dname           Defines *name* as if by a `#define` directive.
- Dname=def       Defines *name* as if by a `#define` directive.
- Idir            Changes the algorithm for searching for include files whose names do not begin with a backslash (`\`) to look in *dir* before looking in the directories on the standard list.

## **cspilt - context spilt**

### **Syntax**

**cspilt** [ **-s** ] [ **-k** ] [ **-f** *prefix* ] *file* *map?* [ *...args* ]

### **Options**

- s** Suppresses the printing of all character enums.
- k** Leaves previously created files intact.
- f***prefix* Names the created files *prefix000..prefixn*.

## **ctags - create a tags file**

### **Syntax**

**ctags** [ *options* ] *name...*

### **Options**

- a** Appends information to an existing tags file.
- B** Uses backward search patterns.
- F** Uses forward search patterns.
- t** Creates typedef tags.
- u** Updates the specified tags file.
- v** Generates an index listing function name, file name, and page number.
- w** Suppresses warning diagnostics and generates a listing.

**ctod** - combine DDIS objects into  
DOTS format

#### Syntax

**ctod** [ -x ] *object.dots*

#### Options

**-x**                      Specifies that ctod is to NOTS  
encode the input file without  
resolving any external references  
present in the file.

**ctrace** - C program debugger

#### Syntax

**ctrace** [*options*] [*file*]  
**crc** [*options*] [*file*]  
**cscr** [*options*] [*file*]

#### Options

**-ifunctions**            Trace only these *functions*.  
**-vfunctions**            Trace all but these *functions*.

**cut** - cut out selected fields of  
each line of a file

#### Syntax

**cut** -cut [*file1 file2...*]  
**cut** -f*file1 [-dchar1 [-s]] [-p*set* file2...*

## Options

|               |                                                                                                    |
|---------------|----------------------------------------------------------------------------------------------------|
| <b>-R</b>     | Specifies ranges that must be a comma separated list of integer field numbers in increasing order. |
| <b>-rlist</b> | Specifies character positions to be cut out.                                                       |
| <b>-rlist</b> | Specifies the fields to be cut out.                                                                |
| <b>-dchar</b> | Uses the specified character as the field delimiter.                                               |
| <b>-s</b>     | Suppresses lines with no defined characters.                                                       |

## **cxref** - generate C program cross reference

### Syntax

**cxref** [*options*] *files*

### Options

|               |                                                                                           |
|---------------|-------------------------------------------------------------------------------------------|
| <b>-c</b>     | Prints a combined cross-reference of all input files.                                     |
| <b>-Dname</b> | Defines <i>name</i> to processor, as if by #define.                                       |
| <b>-ldir</b>  | Searches named directory for include files whose names do not begin with a backslash (\). |
| <b>-lx</b>    | Abbreviation for library name liblibx where x is a string.                                |
| <b>-ofile</b> | Directs output to named file.                                                             |
| <b>-s</b>     | Operates silently; does not print input file names.                                       |

- t                    Formats listing for Alt-column width.
- nozero            Removes any initial definition of *name*.
- width=*n*           Width option which formats output no wider than columns (*decimal*).

## date - print date and time

### Syntax

date [*yy[mm,dd]]hh:mm:ss [-l [-u]]>|| [-format %]*

### Options

- n     Insert a new line character
- t     Insert a tab character
- m     Month of year - 01 to 12
- d     Day of month - 01 to 31
- y     Last 2 digits of year - 00 to 99
- D     Date as mm/dd/yy
- ll     Hour - 00 to 23
- M     Minute - 00 to 59
- S     Second - 00 to 59
- T     Time as HH:MM:SS
- u     Displays time in Greenwich Mean Time
- j     Day of year - 001 to 365
- w     Day of week - Sunday - 0
- a     Abbreviated weekday - Sun to Sat
- b     Abbreviated month - Jan to Dec
- r     Time in AM/PM notation

## **dc - desktop calculator**

### **Syntax**

**dc** [*file*]

## **dd - copy and convert data**

### **Syntax**

**dd** [*options*] = *output...*

### **Options**

|                        |                                                                                                 |
|------------------------|-------------------------------------------------------------------------------------------------|
| <b>if=</b> <i>name</i> | Input file name.                                                                                |
| <b>of=</b> <i>name</i> | Output file name.                                                                               |
| <b>ibs=</b> <i>n</i>   | Input block size, <i>n</i> bytes.                                                               |
| <b>obs=</b> <i>n</i>   | Output block size, <i>n</i> bytes.                                                              |
| <b>bs=</b> <i>n</i>    | Set both input and output block size to <i>n</i> bytes, superseding <b>ibs</b> and <b>obs</b> . |
| <b>cbs=</b> <i>n</i>   | Conversion buffer size, <i>n</i> bytes.                                                         |
| <b>skip=</b> <i>n</i>  | Skip <i>n</i> input records before starting to copy.                                            |
| <b>tfoot=</b> <i>n</i> | Copy <i>n</i> input files before terminating.                                                   |
| <b>seek=</b> <i>n</i>  | Seek <i>n</i> records from beginning of output file before copying.                             |
| <b>rbuf=</b> <i>n</i>  | Use <i>n</i> buffers for reading from those raw devices that support a buffered I/O.            |
| <b>wbuf=</b> <i>n</i>  | Use <i>n</i> buffers for writing from those raw devices that support a buffered I/O.            |

|                     |                                                               |
|---------------------|---------------------------------------------------------------|
| <b>usual=n</b>      | Copy only n input records.                                    |
| <b>conv=ascii</b>   | Convert EBCDIC to ASCII.                                      |
| <b>conv=ebcdic</b>  | Convert ASCII to EBCDIC.                                      |
| <b>conv=low</b>     | Slightly different map of ASCII to EBCDIC (see RESTRICTIONS). |
| <b>conv=block</b>   | Convert variable length records to fixed length.              |
| <b>conv=unblock</b> | Convert fixed length records to variable length.              |
| <b>conv=lower</b>   | Map alphas to lower case.                                     |
| <b>conv=upper</b>   | Map alphas to upper case.                                     |
| <b>conv=swap</b>    | Swap every pair of bytes.                                     |
| <b>conv=overerr</b> | Do not stop processing on an error.                           |
| <b>conv=sync</b>    | Pad every input record to 80.                                 |
| <b>conv=nomulti</b> | Disable multiple tape volumes.                                |
| <b>conv=...</b>     |                                                               |

**dereff** - remove formatting codes from text

## Syntax

**dereff** [-w] file...

## Options

**-w**                      Generates word list (one word per line).

**df** - display free and used disk space

### Syntax

**df** [-i] [-ol] [*filepattern...*] [*file...*]

### Options

- i                      Also report the number of used and free inodes.
- n                      Do not update the file system statistics stored in memory.

**dgate** - log in to a DECnet remote system through an intermediate ULTRIX DECnet host (gateway system)

### Syntax

**dgate** *host*

**dicton,explain** - print wordy sentences; thesaurus for dicton

### Syntax

**dicton** -mfl [-mm] [-ol [-f *pattern file...*]]  
**explain**

### Options

- mm                      Overrides default macro package -ms
- ol                      Causes deroff to skip here.
- f*pattern*                Specifies pattern file in addition to default file *ex*; default file can be suppressed with -n flag.

## **diff - differential file comparator**

### **Syntax**

**diff** [-*l*] [-*x*] [-*s*] [-*with*] [-*k*] *dir1 dir2*

**diff** -*with* [-*b*] *file1 file2*

**diff** -*Describe* [-*b*] *file1 file2*

### **Options**

- l** Displays output in long format.
- r** Recursively checks files in common subdirectories.
- s** Displays names of files that are the same.
- S*start*** Beginning with the specified file starts a directory in the middle.
- o** Writes output to a *stdout* script.
- O** Writes output in reverse order to a *script*.
- c*n*** Displays specified number of context lines with each output line.
- h** Makes a *heasy* comparison.
- D*string*** Causes diff to create a *merged* version of *file1* and *file2* on the *stdout* output.
- b** Ignores trailing blanks and other strings of blanks to compare equal.

## **diff3 - 3-way differential file comparison**

### Syntax

**diff** [-*exs*] *file1 file2 [file3]*

### Options

- a            Produces an *ed* editor script containing the changes between *file1* and *file2* that are to be incorporated into *file3*.
- s            Produces an *ed* editor script containing the changes between *file2* and *file3* that are to be incorporated into *file1*.
- x            Produces an *ed* editor script containing the changes among all three files.

**diffmk** -- mark differences between files

### Syntax

**diffmk** *name1 name2 name3*

**dircmp** -- directory comparison

### Syntax

**dircmp** [-*d*] [-*s*] [-*wa*] *dir...*

### Options

- d            Compares the contents of files with the same name in both directories and outputs a list telling what must be changed in the two files to bring them into agreement.

- s                    Suppresses messages about identical files.
- wn                  Changes the width of the output line to n characters.

**dirname** - deliver directory names from pathname

Syntax

dirname <arg>

**domainname** - display or set the name of the current domain for this system

Syntax

domainname [ name/file:port ]

**dircp** - unpack objects from a DOTS file

Syntax

dircp [ object.dots [ directory ]

**du** - print amount of disk usage

Syntax

du [ -s ] [-a] [name ...]

### Options

- s                      Displays the disk usage for each file
- t                      Displays a summary total only.

### echo - echo arguments

#### Syntax

echo [-n] 'arg ...'

### Options

- n                      Suppresses newlines from output

### echo - echo arguments

#### Syntax

echo [ arg ] ...

### error - analyze and disperse compiler error messages

#### Syntax

error [-a] [-s] [-q] [-v] [ + suffixes ] [-f ignorefile]  
[name]

### Options

- f ignorefile            Ignore the functions listed in the specified file (next argument).
- n                      Does not touch file and sends error messages to the standard output.

- u Prompts before touching the source file.
- S Shows error in unsorted order from the error file.
- s Displays statistics for each error type.
- T Less output.
- c suffixeset Does not touch those files that match the specified suffix.
- v Invokes the v editor on each file that had been touched.

## **expand, unexpand - expand tabs to spaces, and vice versa**

### **Syntax**

expand [-tabstop] [-tabs..] [file...]  
unexpand [-a] [file...]

### **Options**

- t Sets tabstop to the specified number of spaces (21 space).
- a When used with unexpand, compresses file by inserting tabs for two or more spaces.

## **expr - evaluate expressions**

### **Syntax**

expr arg ..

## **extract - interactive string extract and replace**

### **Syntax**

```
extract [-i ignorefile] [-m prefix] [-o] [-p  
patternfile] [-s string ]  
[-n] file...
```

### **Options**

- i        Specifies a new ignore file to be used to instruct extract to ignore specific text strings.
- m        Specifies a prefix to message numbers in the nl file and in the file.
- n        Create a new message source file for each input file.
- p        Specifies a new pattern file to be used.
- o        Specifies a string to be output at the start of the files.
- u        Use a message file produced by a previous run of strextract.

## **eyacc - modified yacc allowing much improved error recovery**

### **Syntax**

```
eyacc -y [grammar]
```

## **file - determine file type**

## Syntax

**file** [ -c | -C File ] [ -m mfile ] *filenames* ..

## Options

- c Checks the magic file for format errors by printing the internal representation of the magic file.
- C Treats the following argument to be a file containing the names of the files to be examined.
- m Instructs file to use an alternate magic file

## find - find files

### Syntax

**find** *pathname-fs* *expression*

### Options

- ctime *n* Tests true if the file has been accessed in *n* days.
- cscope *device* Writes current file on device in cscope format (5120-bytes records).
- exec *command* Tests true if specified command returns a 0 on exit.
- group *groupname* Tests true if group ID matches specified group name.
- inum *n* Tests true if the file has inode number *n*.
- links *n* Tests true if the file has *n* links.
- mount Tests true if the current file is on the same file system as the current working pathname.

|                             |                                                                                                                                                                                                                                          |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-mtime n</code>       | Tests true if the file has been modified in <i>n</i> days.                                                                                                                                                                               |
| <code>-name filename</code> | Tests true if the filename argument matches the current file name.                                                                                                                                                                       |
| <code>-newer file</code>    | Tests true if the current file has been modified more recently than the argument <i>file</i> .                                                                                                                                           |
| <code>ok command</code>     | Executes specified command on standard output, then standard input is read and command executed only once because <i>y</i> .                                                                                                             |
| <code>-perm perm</code>     | Tests true if file has specified octal number.                                                                                                                                                                                           |
| <code>-print</code>         | Prints current pathname.                                                                                                                                                                                                                 |
| <code>-size n</code>        | Tests true if the file is <i>n</i> blocks long (512 bytes per block).                                                                                                                                                                    |
| <code>-type c</code>        | Tests true if file is <i>c</i> type ( <i>c</i> = <i>b</i> , block special file; <i>c</i> , character special file; <i>d</i> , directory; <i>f</i> , plain file; <i>l</i> , symbolic link; <i>p</i> , type port; <i>s</i> , type socket). |
| <code>-user name</code>     | Tests true if file owner is login name or numeric user ID.                                                                                                                                                                               |

## finger - print user finger information

### Syntax

`finger [-options] [name ...]`

## Options

- b Displays a bracket long form list of users.
- f Disables printing of headers for short and quick outputs.
- h Suppresses printing of the subject file.
- i Displays list of users with idle times.
- l Displays output in long format.
- m Matches arguments only on user names.
- o Suppresses printing of the user file.
- q Displays list of users.
- s Displays output in short format.
- w Displays narrow short format of specified users.

## fmt - simple text formatter

### Syntax

fmt [options]

**fold - fold long lines for finite width output device**

### Syntax

fold [ width ] [file...]

**from** - identifies sender of mail

#### Syntax

**from** [-f mailbox] [-a sender]

#### Options

- |            |                                                        |
|------------|--------------------------------------------------------|
| -f mailbox | Uses specified file instead of your normal mail file.  |
| -a sender  | Prints mail headers for mail sent by specified sender. |

**fsplit** - split a multi-routine Fortran file into individual files

#### Syntax

**fsplit** [-e option...] [file]

#### Options

- |           |                                                             |
|-----------|-------------------------------------------------------------|
| -e option | Splits only specified subprogram units into separate files. |
|-----------|-------------------------------------------------------------|

**ftp** - file transfer program

#### Syntax

**ftp** [-v] [-d] [-i] [-a] [-g, host]

#### Options

- |    |                                                                |
|----|----------------------------------------------------------------|
| -d | Enables debugging.                                             |
| -g | Disables file name expansion.                                  |
| -i | Disables interactive prompting during multiple file transfers. |

- n                Disables autologin during an initial connection.
- v                Displays all responses from the remote server as well as all data transfer statistics.

## **gcore - get core images of running processes**

### **Syntax**

**gcore** *process-id ..*

## **gencat - generate a formatted message catalog**

### **Syntax**

**gencat** [ *-b bfile* ] *catfile msgfile ....*

### **Options**

- b                Causes gencat to generate a header file suitable for inclusion in the program source via a #include.

## **getopt - parse command options**

### **Syntax**

**get** -- 'getopt op-string 8'

## **gprof - display call graph profile data**

## Syntax

**gprof** [*options*] [*executable*...]

## Options

- n Suppresses the printing of statically declared functions.
- b Suppresses the printing of a description of each field in the profile.
- c The start and graph of the program is discovered by a heuristic which examines the text space of the object file.
- N *name* Suppresses the printing of the graph profile entry for routine *name* (and its descendants) as -o, above, and also excludes the time spent in *name* (and its descendants) from the total and percentage time computations.
- O *name* Suppresses the printing of the graph profile entry for routine *name* and all its descendants. More than one -O option may be given.
- F *name* Prints the graph profile entry of only the routine *name* and its descendants (as -f, above) and also the only the times of the printed routines in total time and percentage computations.
- f *name* Prints the graph profile entry of only the specified routine *name* and its descendants.
- R Produces a profile file *gmon.sum* is produced which represents the sum

of the profile information in all the specified profile files.

-x Displays routines which have zero usage (as indicated by rail counts and accumulated times)

## graph - draw a graph

### Syntax

graph [options]

### Options

-a Supplies abcdeeee automatically and uses next two arguments to set spacing and starting point.

-b Breaks graph after each label in the input.

-c Uses specified string (next argument) as label.

-g Uses specified number (next argument) in setting up grid style: 0 (no grid), 1 (frame with ticks), and 2 (full grid).

-h Uses specified number (next argument) as fraction of space for height.

-l Uses specified string (next argument) as graph label.

-m Uses specified number (next argument) in setting up line style: 0 (disconnected) and 1 (connected).

-r Uses specified number (next argument) as fraction of space to right before plotting.

|        |                                                                                        |
|--------|----------------------------------------------------------------------------------------|
| -s     | Saves screen (no erase) before plotting.                                               |
| -t     | Transposes vertical and horizontal axes.                                               |
| -u     | Uses specified number (next argument) as fraction of space to move up before plotting. |
| -w     | Uses specified number (next argument) as fraction of space for width.                  |
| -x   1 | Determines x axis continuously.                                                        |
| -y   1 | Same as x but for y axis.                                                              |

## grep, egrep, fgrep - search file for regular expression

### Syntax

grep [option...] expression [file...]

egrep [option...] [expression] [file...]

fgrep [option...] [string] [file...]

### Options

|               |                                                                                             |
|---------------|---------------------------------------------------------------------------------------------|
| -b            | Precedes each output line with its block number.                                            |
| -c            | Produces count of matching lines only.                                                      |
| -e expression | Uses next argument as expression that begins with a colon (:).                              |
| -f file       | Takes regular expression (egrep) or string list (fgrep) from file.                          |
| -i            | Considers upper and lowercase letter identical in making comparisons (grep and fgrep only). |

- l** Lists lines with matching lines only once, separated by a new line.
- n** Precedes each matching line with its line number.
- q** Silent mode and nothing is printed (except error messages).
- v** Displays all lines that do not match specified expression.
- w** Searches for an expression as for a word (as if surrounded by '\<' and '\>').
- x** Prints exact lines matched in their entirety (grep only).

## **groups - show group memberships**

### **Syntax**

**groups [user]**

## **head - give first few lines**

### **Syntax**

**head [-count] [file...]**

## **hostid - set or print identifier of current host system**

### **Syntax**

**hostid [identifer]**

**hostname** - print system name

#### Syntax

**hostname** *hostname(host)*

**lc** - compiler for language support database

#### Syntax

**lc** [ *-Dname=def* ] [ *-Lname* ] [ *-Idir* ] [ *-v* ] [ *-o output* ] [ *source* ]

#### Options

- D Define *name* to the C preprocessor, as if `#define name` had been typed at the head of a source file.
- U Removes any initial preprocessor definition of *name*.
- I Searches for `#include` files in the named directory.
  - o Names the `lc` output file *output*.
- v Gives statistics on the number of single and double letters, the number of tables in the source and the size of the generated binary file.

**id** - print user and group IDs and names

#### Syntax

**id**

## **indent - indent and format C program source**

### **Syntax**

**indent** [*mode*] [*output*] [*flags*]

### **Options**

- l*max*                Determines maximum length of output line.
- c*col*              Determines column at which comments start.
- cd*col*             Determines column in which comments or declarations start.
- i*incr*             Determines number of spaces for one indentation level.
- di*, *ndj*        Causes declarations to be left justified.
- v, -nv             -v turns on "verbose" mode, -nv turns it off.
- ba, -nba           Forces newline after each comma in a declaration.
- d*dir*              Controls the placement of comments which are not to the right of code.
- lw, -hl            Specifying -hl causes complex statements to be lined up in a space order.

## **install - install binaries**

### **Syntax**

**install** [-d] [-m *mode*] [-o *owner*] [-g *group*] [-s, *binary destination*]

### Options

- c                Moves or copies binary to destination.
- g *group*        Specifies a different group from group *staff* for destination.
- m *mode*         Specifies a different mode from the standard 755 for destination.
- o *owner*         Specifies a different owner from owner *root* for destination.
- s                Strips the binary when it is installed.

## lsofst - report I/O statistics

### Syntax

**lsofst** [*interval count*].

## ipcrm - remove a message queue, semaphore set

### Syntax

**ipcrm** [*options*]

### Options

- q *mqqid*        Removes the message queue identifier *mqqid* from the system and destroys the message queue and data structure associated with it.
- m *shmId*         Removes the shared memory identifier *shmId* from the system.
- s *semid*         Removes the semaphore identifier *semid* from the system and destroys

- the set of semaphores and data structure associated with it.
- Q *msgkey* Removes the message queue identifier, created with key *msgkey*, from the system and destroys the message queue and data structure associated with it.
- M *shmkey* Removes the shared memory identifier, created with key *shmkey*, from the system.
- S *semkey* Removes the semaphore identifier, created with key *semkey*, from the system and destroys the set of semaphores and data structure associated with it.

## **ipcs - report interprocess communication facilities status**

### **Syntax**

**ipcs [options]**

### **Options**

- m Displays information about active shared memory segments.
- q Displays information about active message queues.
- s Displays information about active semaphores.
- a Uses all print options (shorthand notation for -a, -q, -m, -s and -t).
- b Displays the biggest allowable size information.

- G Use the specified core file (next argument) in place of `/dev/core`.
  - r Displays creator's login name and group name.
  - M Use the specified memory (next argument) in place of `/varmem`.
  - o Displays the outstanding usage information (number of messages in queue, size of each and number of processes attached to shared memory segments).
  - p Displays the process ID information.
  - t Displays all time statistics.
- The next 9 characters are interpreted as three sets of three bits each.

## **join - join files**

### **Syntax**

**join** *options file1 file2*

### **Options**

- a Produces an additional line for unmatched lines from specified file *n*, where *n* is 1 or 2.
- e *s* Use specified replacement string for all empty output fields.
- j *n* Joins the *n*th field in the *n*th file.
- o *list* Use specified list for output line fields.
- t *c* Sets tab character.

**kill - send a signal to a process**

**Syntax**

kill -sig processid..  
kill -l

**Options**

-l                      Lists signal names.

**last - indicate last logins of users  
and teletypes**

**Syntax**

last -N [name...] [tty...]

**Options**

N                      Limits the number of output lines  
to the specified number.

**lastcomm - show last commands  
executed in reverse order**

**Syntax**

lastcomm [command name...] [user name...] [terminal/  
name...]

**ld - link editor**

**Syntax**

ld [option...] file...

## Options

The `-T` option may be used as well, and is taken to mean that the newly linked segment commences at the corresponding address (which must be a multiple of 1024).

## leave - remind you when you have to leave

### Syntax

`leave [ alarm ]`

## lex - generate lexical analyzer

### Syntax

`lex [-tfn] [file...]`

### Options

- `-f` Run a faster compilation (does not pack resulting tables).
- `-n` Prints no summary information (default option).
- `-t` Writes to standard output instead of to file `leave.c`.
- `-v` Prints on-line summary of generated statistics.

## line - read one line

## Syntax

luc

## lint - check C code

### Syntax

lint [-abcfpqrux] file...

### Options

- a Report assignments of long values to int variables.
- b Report break statements that cannot be reached.
- c Complain about casts that have questionable portability.
- b Apply a number of heuristic tests to attempt to find bugs, improve style, and reduce waste.
- a Do not check compatibility against the standard library.
- p Attempt to check portability to the IBM and GCC/8 dialects of C.
- u Do not complain about functions and variables used and not defined, or defined and not used.
- v Suppress complaints about unused arguments in functions.
- x Report variables referred to by external declarations, but never used.
- Yenvironment Compiles C programs for environment.
- s Do not complain about structures that are never defined (for example, using a structure pointer without knowing its contents).

## lk - link editor

### Syntax

lk [*options...*] *file...*

### Options

- D *number*      Sets data segment length.
- e *symbol*      Takes the argument as the name of the entry point of the loaded program.
- H *number*      Takes number argument as a decimal integer, adds it to end of text, and starts data section at a higher address.
- R              Produces full load map, cross-referencing all defined symbols.
- Ldir           Add dir to the list of directories in which libraries are searched for.
- l *library*      Abbreviation for the library name where *library* is a string.
- M              Produces full load map, consisting of a module and program section synopsis and symbol cross-reference.
- N              Do not make text portion read-only or shareable.
- o              Associates (by giving the output file a 6410 "image number") that when the output file is executed, the text portion is read-only and shared among all users executing the file.

- o *name* Takes the name argument after -o as the name of the lk output file, instead of a.out.
- S Strips the output by removing all symbols except locals and globals.
- s Relaxes the symbol table and relocation bits to save space.
- T *number* Takes the segments as a hexadecimal number which sets the text segment origin.
- t Displays the name of each file as it is processed.
- u *symbol* Enters segment as undefined symbol in symbol table.
- X Saves local symbols except for those whose names begin with 'L'.
- x Suppresses saving nonlocal symbols in output symbol table; enters only external symbols.
- X*number* Adjust the magic number in the output file so that the program runs in the specified environment.
- yyyz Indicates each file in which *yy* appears, its type and whether the file defines or references it.
- z Loads process on demand from the resulting executable file (a10 format) rather than preloaded.

## **ln - link to a file**

### **Syntax**

**ln** [-i] [-s] *name1* [*name2*]  
**ln** [-i] [-s] *name* ... *directory*

### **Options**

- f                      Suppresses all but the usage message.
- s                      Creates a symbolic link.

## **lock - reserve a terminal**

### **Syntax**

**lock**

## **login - log in to a system**

### **Syntax**

**login** [*username*]

### **Options**

- r                      Used by the remote login server, *rlogd*(8), to force login to enter into an initial connection protocol.
- P *<programname>*      Forces login to set its standard input and output to be connected to the *<programname>* program *<programname>*'s.
- U *string*              Allows the system to specify a command to be run as the user's shell.

**logname** - get login name

**Syntax**

logname

**look** - find lines in sorted data

**Syntax**

look [-df] string [,file]

**Options**

- d Uses dictionary order: only letters, digits, tabs and blanks can be compared
- r Fold uppercase to lowercase (compares equal).

**indxbib, lookbib** - build Inverted index for a bibliography, lookup bibliographic references

**Syntax**

indxbib database...  
lookbib database

**lorder** - determine relation for an object library

**Syntax**

lorder file...

- printing (with the `-s` option).
- `-m` Send mail upon completion.
- `-b` Suppress the printing of the burst page.
- `-P` Use to direct output to a specific printer.
- `-C` The argument is the job classification for use on the burst page.
- `-J` The argument is the job name to print on the burst page.
- `-T` The argument is the title used by `url` instead of the file name.
- `-lnum` Produce multiple copies of output.
- `-i` Causes the output to be indented the specified number of blank spaces.
- `-w` Takes the immediately following number to be the page width for `ps`.
- `-x` Takes the immediately following number to be the page length for `ps`.
- `-s` Uses symbolic links to find data files rather than trying to copy them.
- `-l234` Specifies a font to be mounted on font position 4.

**lprm - remove jobs from line printer queue**

## Syntax

trf [ options ] [ file... ]

## Options

- p Use pdf() to format the files (equivalent to printf).
- l Use a filter which allows control characters to be printed and suppresses page breaks.
- t The files are assumed to contain data from troff(1) (i.e. `mantrypager` command).
- o The files are assumed to contain data from ditroff(1) (i.e. independent troff).
- d The files are assumed to contain data from TeX (DVI format from `Strandberg`).
- g The files are assumed to contain standard plot data as produced by the `plot3d` routines (see also `pdf(1)` for the filters used by the printer `apocry`).
- v The files are assumed to contain a vector image for devices.
- c The files are assumed to contain data produced by `efplot`.
- f Use a filter which interprets the first character of each line as a standard FORTRAN carriage control character.
- x Transparent filter.
- r Remove the file upon completion of spooling or upon completion of

## **lp - send requests to an LP line printer**

### **Syntax**

**lp [-c] [-d dest] [-n number] [ ] [file]**

### **Options**

- c** Makes copies of the files to be printed immediately when lp is invoked.
- d dest** Chooses *dest* as the printer that is to do the printing.
- n number** Prints *number* copies (default of 1) of the output.

## **lprm - spool queue examination program**

### **Syntax**

**lprm [ ] [all] [-ll [-Printer] [job num] [user]]**

### **Options**

- a** Displays spool queue.
- l** Displays information in long format.
- P** Displays information for the specified printer.

## **lpr - off line print**

## Syntax

`lprm [-P printer] [-l job #.] [name..]`

## Options

- Removes all jobs owned by you only.
- P printer Removes jobs from specified printer.

## ls - list and generate statistics for files

### Syntax

`ls [-options] name..`

### Options

- l Displays one entry per line.
- s Displays all entries including those beginning with a period (.).
- C Forces multicolored output for pipe or filter.
- o Sorts entries by time of modification.
- d Displays names of directories only, not contents.
- F Marks directories with trailing slash (/), sockets with a trailing equal sign (=), symbolic links with a trailing at sign (@), and executable files with a trailing asterisk (\*).
- p Displays names in the order they exist in directory.

- g Displays assigned group ID (used with -l only).
  - l Displays the number for each file in the first column of the report.
  - L Lists the information, if the file is a symbolic link, for the file or directory the link references rather than just for the link itself.
  - L Lists the mode, number of links, owner, size in bytes, and time of last modification for each file.
- The mode field consists of 11 characters.
- d if the entry is a directory
  - b if the entry is a block-type special file
  - c if the entry is a character-type special file
  - l if the entry is a symbolic link
  - s if the entry is a socket
  - if the entry is a plain file
- The next 9 characters are interpreted as three sets of three characters each.
- r if the file is readable
  - w if the file is writable
  - x if the file is executable
  - if the indicated permission is not granted.
- The group-execute permission character is given as s if the file has the set-group-id bit set; Likewise, the user-execute permission character is given as x if the file has the set-user-id bit set.

The last character of the mode (commonly 'x' or '+') is 't' if the 1600 bit of the mode is on.

- q        Suppress the printing of nongraphic characters in file names as the question mark character (?).
- R        Recursively lists all subdirectories.
- r        Sorts entries in reverse alphabetic or time order.
- s        Displays the size in kilobytes of each file.
- t        Sorts by time modified (latest first) instead of by name.
- u        Uses the time of last access instead of last modification for sorting (with the -r option) or printing (with the -l option).

## lff - labeled tape facility

### Syntax

lff option[key] file...

### Options

- a        Creates a new volume assigning an interchange file name to the files on the volume.
- h        Displays help messages for all options and keys.
- l        Lists each named file on the specified volume.
- x        Extracts each named file from the volume to the user's current directory.

## **m4 - macro processor**

### **Syntax**

**m4** [*file*]

## **make - maintain program groups**

### **Syntax**

**make** [-f *makefile* ] [*options*] [*targets*...]

### **Options**

- |           |                                                                                                                      |
|-----------|----------------------------------------------------------------------------------------------------------------------|
| <b>-f</b> | Uses specified file as input.                                                                                        |
| <b>-i</b> | Equivalent to .IGNORE: entry.                                                                                        |
| <b>-k</b> | Stop processing current entry on command return, but continues with other branches that do not depend on this entry. |
| <b>-n</b> | Traces, prints, but does not update programs.                                                                        |
| <b>-r</b> | Requies an initial .SUFFIXES: entry with no list.                                                                    |
| <b>-s</b> | Signals a .SILENT: entry.                                                                                            |
| <b>-t</b> | Triggers (updates) modification date of each target program only.                                                    |

## **man - displays manual pages online**

### **Syntax**

**man** -k *keyword*..  
**man** -f *page title*..  
**man** [-t] [-c] [-s] [*file*] *page title*..

## Options

- k Display one line summaries of each reference page that contains the specified keyword or keywords.
- f Display one line summaries of each page title specified on the command line.
- S Squeeze multiple blank lines from output.
- u Remove unnecessary blank lines.
- t Photocopy-style output using ruff.

## mdtar - multivolume archiver

### Syntax

**mdtar** [*key*] [*name*] *file*

### Options

- c Changes directory to specified name.
- C Creates a new archive.
- f Writes the named files to the end of the archive.
- t If no file argument is given, all. Generates archive table of contents.
- u Updates the current archive.
- x Extracts each specified file from the archive.
- 0...9 Selects unit number of the drive as an alternate disk drive.
- A Uses the specified number (next argument) as archive with which to begin the output.

|      |                                                                                                |
|------|------------------------------------------------------------------------------------------------|
| b    | Uses the specified number (next argument) as the blocking factor.                              |
| B    | Forces output blocking to 20 blocks per record.                                                |
| I    | Uses the specified file (next argument) as the name of the archive.                            |
| F[F] | Operates in fast mode.                                                                         |
| h    | Saves a copy of the file (excludes symbolic links).                                            |
| i    | Ignores checksum errors found in the archive.                                                  |
| l    | Displays an error message if all links to the file dumped cannot be resolved.                  |
| m    | Does not restore file modification times.                                                      |
| o    | Suppresses the normal directory information.                                                   |
| p    | Restores the named files to their original media, ignoring the present <code>umask(2)</code> . |
| s    | Uses specified number (next argument) as size of media in 512 byte blocks.                     |
| v    | Displays detailed (verbose) information as it restores files.                                  |
| w    | Displays action to be taken for each file and prompts for confirmation.                        |

**msg - allow or disallow messages**

## Syntax

**msg [n] [y]**

**mkdir - make a new directory**

## Syntax

**mkdir [-m] mode... file...**

**mkstr - create an error message file**

## Syntax

**mkstr [-e] messagefile prefix [file...]**

## Options

- Place error messages at the end of specified message file.

**more, page - display file data at your terminal**

## Syntax

**more [-qlfm] [-n] [+linenumber] [+pattern] [name...]**

**page more options**

## Options

- |                    |                                                                               |
|--------------------|-------------------------------------------------------------------------------|
| <b>+linenumber</b> | Start up at linenumber.                                                       |
| <b>-pattern</b>    | Start up two lines before the line containing the regular expression pattern. |

|                        |                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------|
| <b>c</b>               | Clears each page at the top of the screen and reserves each line just before it clears on it. |
| <b>d</b>               | Displays extended continuation prompt at end of each display.                                 |
| <b>-f</b>              | Counts logical text lines (does not fold long lines).                                         |
| <b>-l</b>              | Ignores line feeds (CTRL-J) and, normally, prints at line feeds.                              |
| <b>n</b>               | Specifies number of line more displays.                                                       |
| <b>-s</b>              | Squashes multiple blank lines from the output, producing only one blank line.                 |
| <b>-u</b>              | Ignores all underlining in the data.                                                          |
| <b>i &lt;space&gt;</b> | Display <i>i</i> more lines, (or another screenful, if no argument is given).                 |
| <b>^D</b>              | Display 11 more lines (a "half").                                                             |
| <b>c</b>               | Same as ^D (control-D).                                                                       |
| <b>ix</b>              | Same as typing a space except that <i>i</i> , if present, becomes the new window size.        |
| <b>ox</b>              | Skip <i>i</i> lines and print a screenful of lines.                                           |
| <b>if</b>              | Skip <i>i</i> screenfuls and print a screenful of lines.                                      |
| <b>ib or i^B</b>       | Shit back <i>i</i> screenfuls and print a screenful of lines.                                 |
| <b>q or Q</b>          | Exit from <i>more</i> .                                                                       |
| <b>-</b>               | Display the current line number.                                                              |
| <b>v</b>               | Start up the editor vi at the current line.                                                   |

|          |                                                                                                                                                                                                             |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| h or ?   | Help command; give a description of all the more commands.                                                                                                                                                  |
| iexpr    | Search for the i-th occurrence of the regular expression expr. If there are less than i occurrences of expr, and the input is a file (rather than a pipe), then the position in the file remains unchanged. |
| in       | Search for the i-th occurrence. (single quote) Go to the point from which the last search started.                                                                                                          |
| !command | Invoke a shell with command.                                                                                                                                                                                |
| in       | skip to the i-th next file given in the command line (skips to last file if it doesn't make sense)                                                                                                          |
| ip       | Skip to the i-th previous file given in the command line.                                                                                                                                                   |
| if       | Display the current file name and line number                                                                                                                                                               |
| n or :Q  | Exit from more                                                                                                                                                                                              |
| .        | (dot) Repeat the previous command.                                                                                                                                                                          |

## mt - magnetic tape manipulating program

### Syntax

mt [-f device] command [count]

### Options

|       |                                                                                      |
|-------|--------------------------------------------------------------------------------------|
| bef   | Backspace count files.                                                               |
| ber   | Backspace count records.                                                             |
| cache | Allows mt to use the cache buffer on a tape drive that has the cache buffer feature. |

|                              |                                                                                            |
|------------------------------|--------------------------------------------------------------------------------------------|
| <code>clear</code>           | Clear hardware/software problem.                                                           |
| <code>clear</code>           | Clear serious exception.                                                                   |
| <code>clear</code>           | Clear subsystem.                                                                           |
| <code>eof, eof</code>        | Write current end-of-file marks at the current position on the tape.                       |
| <code>endis</code>           | Disable end-of-tape detection.                                                             |
| <code>enen</code>            | Enable end-of-tape detection.                                                              |
| <code>fs</code>              | Forward-space count files.                                                                 |
| <code>fsr</code>             | Forward-space count records.                                                               |
| <code>noeche</code>          | Disables the use of the cache buffer for any tape drive that has the cache buffer feature. |
| <code>offline, rewind</code> | Rewind the tape and place the tape unit off line.                                          |
| <code>rewind</code>          | Rewind the tape.                                                                           |
| <code>status</code>          | Print status information about the tape unit.                                              |

## **mv -- move or rename files**

### **Syntax**

```
mv [-f] [-C] [-i] /dev /dev
      mv [-i, , f] [-i] /dev... directory
```

### **Options**

- Interprets all following arguments as file names to allow file names starting with a minus.
- f Force.

-i Interactive mode.

## netstat - show network status

### Syntax

```
netstat [-An] [-f address_family] [-s system] [-c]
netstat [-idmrs] [-f address_family] [-s system] [-c]
netstat [-n] [-i interface] [-s system] [-c]
```

### Options

- A Displays the address of any associated protocol control blocks; used for debugging.
- n Displays the information for all sockets.
- f *address\_family* Limits statistics or address control block reports to those of the specified *address\_family*.
- h Displays the state of the IMP host table.
- i *interface* Shows information only about this interface.
- i Displays status information for autoconfigured interfaces.
- m Displays information for the memory management routines. The network manages a private share of memory.
- n Displays network addresses as numbers.
- r Displays the routing tables.

- s                    Displays per protocol statistics.
- t                    Displays time until interface watchdog routine starts up (used only in conjunction with -i option).

## **newaliases - rebuild the data base for the mail aliases file**

### **Syntax**

**newaliases**

## **nice, nohup - execute a command at a lower priority**

### **Syntax**

**nice** [-number] *command* [*arguments*]  
**nohup** *command* [*arguments*]

### **Options**

- number*            Increments the priority by a specified number up to a limit of 20.

## **nl - line numbering filter**

### **Syntax**

**nl** [-b *type* -k *type* -f *type*] [-v *start#*] [-i *incr*] [-p  
 ] [-t *num2*] [-s *sep*] [-w *width*] [-a *Regress*] [-d *defini*]  
*file*

## Options

- b *type* Specifies which logical page body lines are to be numbered.  
The default *type* for logical page body is r (text lines numbered).
- b *type* Same as -b *type* excepts for header.
- f *type* Same as -b *type* excepts for footer.
- p Do not restart numbering at logical page delimiters.
- s *start#* The initial value used to number logical page lines.
- i *incr* The increment value used to number logical page lines.
- s *sep* The character used in separating the line number and the corresponding text line.
- w *width* The number of characters used for the line number.
- n *format* The line numbering format.
- l *num* The number of blank lines to be considered as one.
- d *str* The delimiter characters specifying the start of a logical page section may be changed from the default characters ( \ ) to two user specified characters.

**nm** -- print program's name list

## Syntax

**nm** [*options*] [*file...*]

## Options

- a           Display all symbols including debug symbol table.
- e           Prints only global (external) symbols.
- f           Display all symbols including debug symbol table.
- g           Prints only global (external) symbols.
- n           Sorts numerically rather than alphabetically.
- o           Prepends file or archive element name to each output line.
- p           Prints symbolic table order and does not sort.
- r           Sorts in reverse order.
- u           Displays only undefined symbols.

## **nslookup - query BIND servers interactively**

### Syntax

```
nslookup [-A] [-a host] [-s server] A  
nslookup - A [-server A]
```

## **nsquery - name server query**

### Syntax

```
nslookupnsquery [ lookup ] [ host ] [ server ]
```

## Options

|                 |                                                                         |
|-----------------|-------------------------------------------------------------------------|
| <b>hostname</b> | Retrieves the host name, IP address, and aliases of the specified host. |
| <b>user</b>     | Specifies the system for which you want host information.               |
| <b>server</b>   | Specifies the RND server you want to query for the information.         |

## od - create file octal dump

### Syntax

**od** [*options*] [*file*] [*offset*] [*label*]

### Options

|           |                                                                         |
|-----------|-------------------------------------------------------------------------|
| <b>-c</b> | Interprets bytes as characters and display them with their ASCII names. |
| <b>-b</b> | Displays bytes as unsigned octal.                                       |
| <b>-e</b> | Displays bytes as ASCII characters.                                     |
| <b>-d</b> | Displays short words as unsigned decimal.                               |
| <b>-f</b> | Displays long words as floating point.                                  |
| <b>-h</b> | Displays short words as unsigned hexadecimal.                           |
| <b>-i</b> | Displays short words as signed decimal.                                 |
| <b>-l</b> | Displays long words as signed decimal.                                  |
| <b>-o</b> | Displays short words as unsigned octal.                                 |

- s[n] Looks for strings of ASCII characters of a minimum length.
- v Displays all data and indicates lines identical to the last line shown with an \* in column 1.
- w[n] Specifies the number of input bytes to be interpreted and displayed on each output line.
- x Displays short words as hexadecimal.

## **pack, pcatt, unpack - compress and expand files**

### **Syntax**

```
pack [-t] [-f] [-c] name...
      pack name...
unpack name...
```

## **pagesize - print system page size**

### **Syntax**

```
pagesize
```

## **passwd - change your login password**

### **Syntax**

```
passwd [name]
```

## paste - merge file data

### Syntax

```
paste file1 file2...  
paste -dbat file1 file2...  
paste -s [dlist] file1 file2...
```

### Options

- Used in place of any file name, to read a line from the standard input.
- d*bat* Replaces characters of all but last file with *bat* characters (default tab).
- s Merges subsequent lines rather than one from each input file.

## pc - Pascal compiler

### Syntax

```
pc [option ...]source...
```

### Options

- c Suppresses loading and produce .o files from source files.
- g Produce additional symbol table information for dbx(1).
- w Suppresses warning messages.
- O Invokes an object-code optimizer.
- o *output* Names the final output file *output* instead of *a.out*.
- p Prepares object files for profiling.

- S                    Compiles the named program, and leave the assembler-language output on the corresponding file suffixed *.a*.
- C                    Compiles code to perform runtime checks, verify assert calls, and initialize all variables to zero as in *pi*.
- b                    Block buffers the file output.
- lname                Produces a listing for the specified procedures, functions and include files.
- l                    Makes a program listing during translation.
- n                    Accepts standard Pascal only and non-standard constructs cause warning diagnostics.
- t *directory*        Uses the given *directory* for creating temporary files.
- x                    Allows execution profiling with *ppx* by generating statements counters, and arranging for the creation of the profile data file produced when the resulting object is executed.

## **pdx - pascal debugger**

### **Syntax**

**pdx** [-t] [*objfile*]

### **Options**

- t                    Causes profile to be executed immediately.

## **pg - file perusal filter for soft-copy terminals**

### **Syntax**

**pg** [-p | -c] file

### **Options**

- number      Specifies the size (in lines) of the window that pg is to use instead of the default.
- string      Uses the string as the prompt.
- c            Moves the cursor and clears the screen before displaying each page.
- e            Do not pause at the end of each file.
- n            Print all messages and prompts in standard mode (usually invaria video).
- +linenumber   Starts at linenumber.
- +pattern/      Starts at the first line containing the regular expression, pattern.

## **pi - Pascal interpreter code translator**

### **Syntax**

**pi** [options] [-l name...] name.c

### **Options**

- b            Block buffer the file output.
- i            Enables listing for specified procedures and functions and while processing specified include files.

- l                Creates a program listing while translating source.
- n                Begins each listed include file on a new page with a banner line.
- p                Suppresses control flow hardware on error; suppresses statement limit counting.
- s                Accepts standard Pascal only; non-standard constructs cause warning diagnostics.
- t                Suppresses runtime tests of subrange variables and `break`; treats `assert` statements as comments.
- u                Runs in card image mode; only the first 72 characters of input lines are used.
- w                Suppresses all warning diagnostics.
- x                Enables execution profiling, with pop by generating statement counters, and autotag for the creation of the profile data file `prof.out` when the resulting object is executed.

## **plx - Pascal interpreter and executor**

### **Syntax**

`plx [-help|-w|-l] [-i name] [-o name] [-p argname...]`

### **Options**

- b                Block buffers the output.

**include** Enables the listing for any specified preprocessor and functions, and while processing any specified include files.

**-l** Creates a program listing while translating source.

**-o** Begins each listed include file on a new page and with a banner line.

**-p** Suppresses control flow backspace on entry.

**-s** Accepts standard Pascal only.

**-t** Suppresses runtime test of subrange variables.

**-u** Runs in card image mode.

**-w** Suppresses all warning diagnostics.

**-x** Enables execution profiling.

## plot - graphics filters

### Syntax

**plot** [-Terminal] [-aster] [-l] [-w] [-c]

### Options

**-Terminal** Uses the specified terminal name as the terminal type for which plotting instructions are to be generated.

**4020** Tektronix 4020 storage scope.

**450** DASI Hytera 450 terminal (disable mechanism).

**800** DASI 800 or 881 terminal (disable mechanism).

**300S** DASI 300S terminal (disable mechanism).

**ver** Verazac D1260A printer-plotter.

**hp116** DEC LWP16 Graphics Plotter

**hp5475a** HP 7475A Graphics Plotter.

**poster** is a scan converted temporary file that is sent directly to the plotter.

**-l** length of paper window in plotter units (unit scale)

**-w** width of paper window in plotter units (unit scale)

**-ep** initial pen sequence to be used

## **pmerge - pascal file merger**

### **Syntax**

**pmerge** *name.p...*

## **pr - print files**

### **Syntax**

**pr** [ *options* ] [ *files* ]

### **Options**

**-a** Prints multi-column output across the page.

**-b** Prints blank headers.

**-d** Double-spaces the output.

**-e *n*** Expands input tabs to character positions  $k+1$ ,  $2^k-1$ ,  $3^k+1$ , ...

**-f** Uses formatted characters for new pages.

- h Use the next argument as the header to be printed instead of the file name.
- l w Replaces white space in output by inserting tabs to character positions  $k+1, 2 \cdot k+1, 3 \cdot k+1, \dots, n \cdot k+1$ .
- k Begin printing with page k (default is 1).
- k Produces k-column output (default is 1).
- l b Sets the length of a page to b lines.
- m Merge and print all files simultaneously, one per column (overrides the -k, and -n options).
- n c Numbers lines.
- o i Offsets each line by i character positions (default is 0).
- p Pauses before beginning each page if the output is directed to a terminal.
- r Suppresses diagnostic reports on failure to open files.
- s c Separates columns by the single character c instead of by the appropriate number of spaces (default for c is a tab).
- t Suppresses the five-line identifying header and the five-line trailer normally supplied for each page.
- w w Sets the width of a line to w character positions.

**print** - pr to the line printer

**Syntax**

**print** *file...*

**printenv** - display value of a shell variable

**Syntax**

**printenv** [*name*]

**prmail** - print out mail in the post office

**Syntax**

**prmail** [*user...*]

**prof** - profile an object file

**Syntax**

**prof** [-s] [-l] [-ol] [-x] [-s] [-v] [*func* [-*flags*]]  
[*file*] [*file2...*]

**Options**

- s Displays all symbols rather than just external symbols.
- l Displays output by symbol value.
- n Displays output by number of calls.
- v Produces graphic output for display by the plot(1) filter.
- x Routines having zero length, as indicated by call counts and

accumulated time, are printed in the output.

## **ps - print process status statistics**

### **Syntax**

**ps** [*options*] [*processes*] [*core*]

### **Options**

- p** Represents any given process number and must be the last option given.
- a** Displays information for processes executed from all user terminals.
- c** Displays command names which are stored internally in the system for accounting purposes rather than the command arguments, which are kept in the process address space.
- e** Displays the environment as well as the command arguments.
- g** Displays all processes.
- k** Uses file /etc/passwd in place of /etc/passwd and /etc/group.
- l** Displays information in long format.
- s** Adds the size SSIZ of the kernel stack of each process to the basic output format for use by system maintainers.
- tr** Displays information for specified terminal only.
- u** Displays user-oriented output, which includes fields USER, %CPU, and

- s %MEM, STRE. Displays process system time and user time in addition to cumulative time.
- w Produces 132-column rather than 90 column output.
- x Displays information for all processes, including those not executed from terminals.

## ptx - create permuted index

### Syntax

**ptx** *options...* [*inputoutput*]

### Options

- b *break* Use the characters in the break file as separators.
- f Fields upper and lower case letters for sorting.
- g *n* Uses specified number as interfield gap.
- I *ignore* Do not use as keywords any words given in the ignore file.
- n *only* Use words listed only in the only file.
- r Uses leading nonblanks as reference identifiers.
- t Prepares the output for the phyltypewriter.
- w *n* Use the next argument, *n*, as the width of the output line.

**pwd** - print working directory

#### Syntax

**pwd**

**px** - Pascal code executor

#### Syntax

**px** [*file*]*arguments* **||**

**pxp** - Pascal execution profiler

#### Syntax

**pxp** [*codefilename*] [*-93450700*] [*-xname* **||** *name.p*]

#### Options

- Underlines all keywords.
- d** Uses the specified number (*-d*) as the indentation unit.
- a** Displays all procedures (even those not executed).
- c** Uses the core file in generating the profiling data.
- d** Displays all declarative parts.
- e** Eliminates include directives when reformulating a file.
- f** Displays all parenthesized expression.
- j** Left justifies all procedures and functions.
- p** Begins a new page for each included file.

- c Strips comments from the input text.
- t Prints a table summarizing procedure and function call counts.
- u Generates the output in card image format, using only the first 72 characters of input lines.
- w Suppresses all warning messages.
- z Generates an execution profile for the specified modules (usual arguments).

## **pxref - Pascal cross-reference program**

### **Syntax**

**pxref** [-] name

### **Options**

- Optional argument that suppresses the line numbered listing.

## **quota - display disk usage and limits**

### **Syntax**

**quota** [- qv] [user]

### **Options**

- q Prints a message that contains information only on file systems where usage is over quota.

**-v** Display users quotas on file systems where no storage is allocated.

## **ranlib - convert archives to random libraries**

### **Syntax**

**ranlib** *archive...*

## **rcp -- remote file copy**

### **Syntax**

**rcp** [-p] *file file2*  
**rcp** [-v] [-p] *file... directory*

### **Options**

**-p** Preserves the modification times and modes of the source files in its copies, ignoring the umask.

**-v** Copies files in a subdirectories recursively; if the file to be copied is a directory.

## **refer - find and format bibliographic references**

### **Syntax**

**refer** [-a] [-b] [-c] [-e] [-f] [-kv] [-m] [-n] [-p]  
**bib** [-style] [-B] [-m] [-P] [-R] [*file...*]

## Options

- ar Reverse order of first author names.
- Bim Bibliography mode.
- b Creates base entries: no flags, numbers, or labels.
- keys Capitalizes fields whose key letters are in string.
- c Accumulates all references in one list.
- fn Set the footnote number to n instead of the default of 1 (first).
- lrs Uses specified label in place of numbering for each reference data line beginning with a 1.
- lrsn Instead of numbering references, use label made from the senior author's last name and the year of publication.
- P Places punctuation marks after the reference signal, rather than before.
- s Do not search the default file *Ausdict/papers/ind*.
- pib Specifies file to be searched before *Ausdict/papers*.
- B Produce references in the Natural or Social Science format.
- keys Uses specified key to sorting references.

**rset - reset terminal mode**

**Syntax**

**rset**

**rev - reverse character positions  
in file data**

**Syntax**

**rev [file...]**

**rlogin - remote login**

**Syntax**

**rlogin host [-cc] [-B] [-L] [-l username]**  
**rhost [-cc] [-B] [-L] [-l username]**

**Options**

- |                    |                                                                 |
|--------------------|-----------------------------------------------------------------|
| <b>-s</b>          | Allows an 8-bit input data path at all times.                   |
| <b>-cc</b>         | Takes the specified character as the rlogin escape character.   |
| <b>-l username</b> | Logs you in as the specified user, not as your user login name. |
| <b>-L</b>          | Runs session in login mode.                                     |

**rm, rmdir - remove (unlink) files  
or directories**

## Syntax

**rm** [-d] [-r] [-i] [-f] *file-or-directory-name...*  
*rm -d* *directory name...*

## Options

- |           |                                                                                                                                         |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|
|           | Specifies that the named files have names beginning with a minus (for example -myfile).                                                 |
| <b>-f</b> | Forces the removal of file or directory without first requesting confirmation.                                                          |
| <b>-i</b> | Prompts for yes or no response before removing each entry.                                                                              |
| <b>-r</b> | Recursively removes all entries from the specified directory and, then, removes the entry for that directory from its parent directory. |

## **rmail** - route mail to users on remote systems

### Syntax

**rmail** *user...*

## **roffbib** - run off bibliographic database

### Syntax

**roffbib** [*options*] [*file...*]

## Options

|                |                                                                                       |
|----------------|---------------------------------------------------------------------------------------|
| <b>-t term</b> | Uses specified name as terminal type for which output is prepared.                    |
| <b>-x</b>      | Suppresses the printing of abstracts.                                                 |
| <b>-e</b>      | Formats text with equally spaced words, justified lines, and full section.            |
| <b>-b</b>      | Uses tabs in horizontal spacing to space output and reduce output character count.    |
| <b>-n</b>      | Uses specified number (-nN) as first page to be printed.                              |
| <b>-o</b>      | Uses specified list (-ofist) as only pages to be printed.                             |
| <b>-a</b>      | Stops after specified number of pages (-ap).<br>page (-ap).                           |
| <b>-m name</b> | Specifies a user-defined set of macros with space between -m and the macro file name. |
| <b>-V</b>      | Sends output to the Verilog.                                                          |
| <b>-Q</b>      | Queue output for the phototypesetter.                                                 |
| <b>-rN</b>     | Sets named register <i>r</i> to specified value <i>N</i> .                            |

## rsh - remote shell

### Syntax

rsh host [ + username ] [-n] command  
Host [ + username ] [-n] command

### Options

- i username      Logs you in as the specified user.  
                  user as your user login name.
- n                Redirects all command input to  
                  /dev/null.

## **ruptime - show host status of local machines**

### Syntax

**ruptime [ -a ] [ -l ] [ -t ] [ -u ]**

### Options

- a                Users idle an hour or more are not  
                  counted unless this option is  
                  specified.
- d                Display only those hosts that are  
                  considered down.
- l                Sort the status list by load average.
- r                Show only hosts that are up and  
                  running.
- t                Sort the status list by uptime.
- u                Sort the status list by number of  
                  users.
- us               Show only those hosts with no or  
                  more users.

## **rwho - who is logged in on local machines**

## Syntax

`who [ -sh ] [users]`

## Options

- a Lists all users.
- h Sorts users by last name.

**smake - maintain, update, and regenerate groups of programs**

## Syntax

`smake [-f makefile] [ targets ]`

## Options

- h Compatibility mode for old makefiles.
- A Debug mode.
- e Environment variables override assignments within *makefiles*.
- f *makefile* Description file name determined by *makefile* as next argument.
- i Ignore error codes returned by invoked commands.
- k Abandon work on current entry, but continue on other branches that do not depend on that entry.
- m Displays a memory map showing text, data, and stack.
- n No execute mode.
- p Displays the complete set of macro definitions and target descriptions.

- q Question.
- r Does not use built-in vi/es.
- s Silent mode.
- t Touches target files (causing them to be up to date) rather than issuing usual commands

## **script – generate script of your terminal session**

### **Syntax**

**script** [-a] [/file]

### **Options**

- a Append output to output file.

## **sed – stream text editor**

### **Syntax**

**sed** [-a] [-e script] [ f /file/ [/file...]

### **Options**

- e script  
Uses specified file as input file of commands to be executed.
- f /file  
Uses specified file as input file of commands to be executed.
- n Suppresses all normal output.

**size** - print program's sizes

**Syntax**

**size** [object...]

**sleep** - suspend execution for a time

**Syntax**

**sleep** time

**soelim** - eliminate **noif** source directives from **noif** input

**Syntax**

**soelim** [/Ox...]

**Options**

- File names corresponding to standard input.

**sort** - sort file data

**Syntax**

**sort** [options] [+pos1|-rev2] [/Ox...]

**Options**

- b Ignores leading blanks (spaces and tabs) in field comparisons.
- d Sorts data according to dictionary ordering: letters, digits, and blanks only.

- f Fold: uppercase to lowercase while sorting.
- i Ignore characters outside the ASCII range 0-127 in nonnumeric comparisons.
- n Sort fields with numbers numerically.
- r Reverse the sense of comparisons.
- L Use specified character as field separator.
- c Checks sorting order and displays output only if out of order.
- m Merges previously sorted data.
- output  
Uses specified file as output file.
- T Use specified directory to hold temporary files.
- u Suppresses all duplicate entries.

## **sort5 -- internationalized System 5 sort and/or merge files**

### **Syntax**

**sort5** [file]

### **Options**

- c Checks that the input file is sorted according to the ordering rules; gives no output unless the file is out of order.
- m Merges only; the input files are already sorted.
- u Suppresses all but one in each set of lines having equal keys.
- output  
Specifies the name of an output file to use instead of the standard output.

- ykbmem Specifies the number of kilobytes of memory to use when sorting a file.
  - xwsize Records the size of the longest line read in the sort phase so buffers can be allocated during the merge phase.
- Sorts using tags.
- d Specifies Dictionary order.
  - f Folds lower case letters into upper case.
  - i Ignores characters outside the ASCII range 000-075 in arithmetic comparisons.
  - n Sorts an initial numeric string, consisting of optional blanks, optional minus sign, and zero or more digits with optional decimal point, by arithmetic value.
  - r Reverses the sense of comparisons.

## sortbib - sort bibliographic database

### Syntax

sortbib [-aKEYS] database...

### Options

- aKEYS Specify how sort KEYS.

## **spell, spellin, spellout** - check text for spelling errors

### **Syntax**

```
spell [-v] [-b] [-x] [-d dict] [+local file] [-s dictop]  
[ -h spellhist] [file...]  
      spellin [list]  
      spellout [-d] list
```

### **Options**

- v Displays words not found in spelling list with all plausible derivations from spelling list.
- b Checks data according to British spelling.
- x Precedes each word with an equal sign (=) and displays all plausible derivations.
- d *dict*  
Specifies the file used for the spelling list.
- h *spellhist*  
Specifies the file used as the history file.
- s *dictop*  
Specifies the file used for the stop list.
- +local *file*  
Removes words found in *localfile* from the output of the spell command.

## **spline** - Interpolate smooth curve

### **Syntax**

```
spline [option...]
```

## Options

- a Supplies axes automatically and uses specified number (next argument) for spacing.
- k Sets the boundary constant to the specified value (next argument).
- n Uses specified number (n) in calculating intervals between lower and upper limits.
- p Periodically produces output (matches derivatives at ends).
- x Uses specified numbers (next arguments) as lower and upper limits.

## split - split file into smaller files

### Syntax

**split** [-n] [file name]

### Options

- Uses standard input.
- n Writes specified number n lines to each output file.

## strxtract - batch string extraction

### Syntax

**strxtract** -p pattern/file [ -i ignore/file ] [ -d / ]  
file ...

### Options

- i Specifies a new ignore file to be used to instruct strextract to ignore specific text strings.
- p Specifies a new pattern file to be used.
- d If this flag is set warnings are not printed for duplicate strings.

### strings - print ASCII strings in program

#### Syntax

**strings** [-i] [-p] [-number] file...

#### Options

- Checks through the entire object file for ASCII strings.
- number Sets the minimum string length to specified number of characters and default is 4.
  - c Precedes each string with its file offset (octal).

### strip - remove symbol table and relocation bits

#### Syntax

**strip** name...

### strmerges - batch string replacement

## Syntax

straverage [-m prefix] [-p patternfile] [-n string] file...

## Options

- m Specifies a prefix to message numbers in the PL file and the log.
- p Specifies a new pattern file to be used.
- s Specifies a string to be output at the start of the file.

## style - analyze surface characteristics of a document

### Syntax

style [-m] [-num] [-s] [-e] [-l num] [-r word] [-p] [-P] file...

### Options

- a Displays all sentences with their length and readability index.
- e Displays all sentences that begin with an expletive.
- l num  
Displays all sentences longer than num.
- ml Sizes lists in document.
- mm Overrules the default menu package -ma.
- P Displays parts of speech of the words in the document.
  - p Displays all sentences that contain a positive verb.

**-r num**

Display all sentences whose readability index is greater than num.

**su - substitute a user ID**

**Syntax**

**su [userid]**

**Options**

**-f**

Prevents rsh(1) from executing the rcfile file, making su start up faster.

**-** Simulates a full login.

**sum - print object file's checksum**

**Syntax**

**sum file**

**syncorder - rearrange name list**

**Syntax**

**syncorder orderfile syncfile**

**sync - update the super block**

**Syntax**

**bin/sync**

## **tabs - set tabs**

### **Syntax**

**tabs** [-ol (*terminal*)]

### **Options**

**-n** Do not indent left margin.

## **tail - print lines from file**

### **Syntax**

**tail** [-f] [(number)|*buffer* | *file*]

## **talk - talk to another user**

### **Syntax**

**talk** *person* [*hostname*]

## **tar - multivolume archiver**

### **Syntax**

**tar** [*key*] *command*...

### **Options**

- c** Create a new archive on tape, disk, or file.
- r** Write the names listed to the end of the archive.
- t** List the names of the files as they occur on the input archive.
- u** Add the named files to the archive if they are not there already or if they have been modified since they were last put in the archive.

- x Extract the named files from the archive.
- D, d Substitute a number for the device unit number, as in *ddwrmt0h*.
- A Use next argument as archive number with which to begin output.
- R Force input and output blocking to 20 blocks/record.
- T Directory output in original tar style.
- RMT Operate in fast mode.
- H Help mode.
- M New arg specifies maximum archive number to be written and prints current archive number on output line.
- N No multi-archives, file splitting, or new header format on output.
- O Include file owner and group names in verbose output if present in archive header (*o* and *g* functions).
- F Used to specify POSIX format tapes.
- E Output User Group Standard archive format.
- V Display extended verbose information.
- b Use the next argument as the blocking factor for tape records.
- d Use *ddwrmt0h* as the default device (abbrev. factor of 10).
- f Use the next argument as the name of the archive instead of *ddwrmt0h*.
- h Save a copy of the actual file on the output device under the absolute Unix name, instead of placing the symbolic information on the output.
- i Ignore checksum errors found in the archive.
- L Complain if tar cannot resolve all of the links to the files damaged.

- m Do not restore the modification times.
- n Suppress the normal directory information.
- p Restore the named files to their original modes, ignoring the present umask(2).
- s Next argument specifies size of archive in 1024-byte blocks.
- v Write the name of each file treated, preceded by the function letter, to diagnostic output.
- w Print the action to be taken, followed by the name, then wait for user confirmation.

**tbl** -- format tables for nroff or troff

#### Syntax

tbl [-x] [-a] [-b] [-c]

**lge** -- pipe output to terminal and file

#### Syntax

lge [-i] [-a] [-b] [-c]

#### Options

- a Appends input to existing files.
- i Ignores interrupts.

**telnet** -- user interface to the TELNET protocol

### Syntax

**telnet** [*host* *port*]

## **test – test conditional expression**

### Syntax

**test** *expr*

## **test – condition evaluation command**

### Syntax

**test** *expr*

**[** *expr* **]**

## **tftp – trivial file transfer program**

### Syntax

**tftp** [*host* *port*]

## **time – time a command**

### Syntax

**time** *command*

## **tip, cu – connect to a remote system**

### Syntax

**tip** [*-v*] [*-speed*] *systemname*

**tip** [*-v*] [*-speed*] *phone-number*

**cu** *phone-number* [*-t*] [*-s speed*] [*-s user*] [*-l size*]

## Options

- s Use specified speed (s) as baud rate.
- t Use specified terminal line.
- v Display s-l variable settings.

### CTRL-D:

Drop the connection and exit (you may still be logged in on the remote machine).

### c [name]:

Change directory to name (no argument causes a change to your home directory).

- ! Escape to a shell (exiting the shell returns you to the !).

> Copy file from local to remote.

< Copy file from remote to local.

### @ from [ host ]:

Send a file to a remote UNIX host.

- ! Take a file from a remote UNIX host.

! Pipe job output from a remote command to a local UNIX process.

^ Send a BREAK to the remote system.

> Set a variable.

v Display sets as they are made.

### CTRL-Z

Stop tip (only available with job control).

- ? Displays a summary of the tldc escapes.

The tip utility uses the file telnetremote to find how to reach a particular system and to find out how it should operate while talking to the system.

## **touch - update access and modification times of a file**

### **Syntax**

**touch** [ -amcf ] [ mmddhhmm[yy] ] *file*

### **Options**

- a** Causes touch to update the access time.
- c** Prevents touch from creating the file if it did not previously exist.
- f** Attempts to force the touch in spite of read and write restrictions on a file.
- m** Causes touch to update the modification time.

## **tr - translate characters**

### **Syntax**

**tr** [-cds] (*string1*) [*string2*]

### **Options**

- c** Translates complement: *string1* to those not in *string1*.
- d** Delete all characters in *string1* from output.
- s** Suppress succession of a character in *string1* to one in output.

## **trace - trace system calls of programs**

### **Syntax**

**trace** [*options*] *cmd args...*

### **Options**

- f *filename*  
Puts dump in file *filename*.
- g Behaves arguments only.
- p# Traces given PIDs and their children.
- g# Traces given groups only.
- p# Traces given PIDs only.
- u# Traces given system calls only.
- v# Traces given UIDs only.

## **trans - translation tool for use with message source files**

### **Syntax**

**trans** [-c | [-o *name*] *file.msf*]

### **Options**

- c Translate comment lines beginning with c on line #1, including messages.
- o Call the output file name.

**true, false - test for status**

### Syntax

true  
false

## test -- set terminal mode

### Syntax

test [-options] [-m[*ident*] [*test hardware type*] ... type  
]  
reset ...

### Options

- Name of terminal in output on abort, captured by the shell, and placed in the environment variable TERM.
- cc* Use the specified character as the erase character.
- i Suppresses transmitting terminal initialization strings.
- kc* Use the specified character as the kill character.
- n Initializes the "raw" tty driver, if applicable.
- Q Suppresses erase and kill character message.

## tsort -- create topological sort

### Syntax

tsort *file*

## tty -- print current terminal name

## Syntax

try [-x]

## Options

-x Suppresses warnings.

## ul - process underscores for terminal

## Syntax

ul [-d] [-t *terminal*] [*name*...]

## Options

-d Displays underlining on separate line containing appropriate dashes (-).

-t *terminal*

Use type of specified terminal to place your terminal's type

## uniq - report repeated lines in a file

## Syntax

uniq [-c] [+n] [-n] [*input/output*]

## Options

-c Skips specified number of fields.

+n Skips specified number of characters in addition to fields.

-c Displays number of repetitions, if any, for each line.

- d Displays only lines that were repeated
- u Displays only unique (unrepeated) lines.

## **uptime - display system status**

### **Syntax**

**uptime [-w]**

**users - print names of users who are logged in**

### **Syntax**

**users**

**uucp, uulog, uuname - unix to unix copy**

### **Syntax**

**uucp** [*option...*] *source-file... destination-file*  
**uulog** [*option...*]  
**uuname** [*option...*]

### **Options**

- d Create all necessary directories for the file copy.
- c Uses the source file when copying and rather than copying the file to the spool directory.
- m Sends you mail when the copy is complete.
- mx Sends mail to the recipient.
- W Keeps only local files.
- sys Displays information about work involving specified system.

**-user**

Displays information about work involving specified user.

**-l** Uses local system name.

**uuencode, uudecode** -  
encode/decode a binary file for  
transmission via mail

**Syntax**

uuencode [*file*] *remoteuser* | mail *sysllays21...@remote*

uudecode [*file*]

**uusend** - send a file to a remote  
host

**Syntax**

uusend | -m *mode* | *source file sysllays21...@remote@ls*

**Options**

**-m *mode***

Specifies serial number for mode of file on the  
remote system.

**uustat** - uuftp status inquiry and  
job control

**Syntax**

uustat | *options* |

## Options

- clear*  
Remove entries older than specified hour.
  - job* Reports status of all requests.
  - kill*  
Kills specified job.
  - reach*  
Reports status of accessibility of machines reached.
  - older*  
Reports status of requests which are older than specified hour.
  - sys* Reports status of tcp requests for specified system.
  - user*  
Reports status of requests issued by specified user.
  - v* Invokes verbose printout option.
  - younger*  
Reports status of all requests that are younger than specified hour.
- system*  
is the system in question
- status time*  
is the time the last status entry was made.
- last success time*  
is the last time a connection was successfully made to this system.
- status* is a self explanatory description of the machine status.

## lux - unix to unix command execution

## Syntax

**nc** [-l] *commandstring*

## Options

- c Do not copy local file to the spool directory for transfer to the remote machine.
- g *grade*  
Specifies the *grade* which is a single letter or number from 0 to 9, A to Z, or a to z.
- n Sends no notification to user.
- p *file*  
Reads *file* from stdin.
- r Queues the job, but does not start the file transfer.
- x *debug*  
Produces debugging output on stdout.
- s Notify the user if the command fails.

## vc - version control program

### Syntax

**vc** [-s] [-r] [-color] [-s] [*keyword=colon...*  
*keyword=colon...*]

### Options

- s Replaces the keywords surrounded by control characters in all text files.
- color  
Specifies a control character to be used in place of :.
- w Suppresses all warning messages.
- f Ignores all characters from the beginning of the line to the first tab character.

## **vcc -- VAX C compiler**

### **Syntax**

**vcc** [*option...*] *file...*

### **Options**

The following is a list of the available options:

- |                        |                                                     |
|------------------------|-----------------------------------------------------|
| <b>cross-reference</b> | Generates a cross-reference listing section         |
| <b>debug</b>           | Generates a loadable module for use with <b>obs</b> |
| <b>define</b>          | Assign a specified value to a name                  |
| <b>g_double</b>        | Uses the G floating point type                      |
| <b>list</b>            | Generates a list file                               |
| <b>machine code</b>    | Generates the machine code listing section          |
| <b>object</b>          | Generates an object file with a specific name       |
| <b>optimize</b>        | Selects code optimization                           |
| <b>show</b>            | Includes symbolic and intermediate expressions      |
| <b>standard</b>        | Selects portability mode                            |
| <b>undefined</b>       | Resolves the assignment of a value to a name        |
| <b>warnings</b>        | Disables warning or informational messages          |
- w** Suppresses warning diagnostics.
- DNAMELIST** **FILE** is added to the **vcc** command (or **cpp** command if **-E** is specified).

- \* The *k* parameters *-ls*, *-log*, or *-ls\_p* are preceded with *-leV*, *-leVg*, or *-leV\_p* (if not suppressed by *-b*).
- \* The *k* parameters *-lm*, *-lmg*, or *-lm\_p* are changed to *-lmV*, *-lmVg*, or *-lmV\_p* (if present).

## **ypoc - Compound document viewer**

### **Syntax**

**ypoc** [-f *format*] [-O *file*] [-P *processing*] [-D *display*] *file*

### **Options**

- f Specifies the format of the input file.
- O Names a file containing the processing options to be used by the front end converter.
- P Specifies the processing options to be applied during the viewing of the file.
- D Specifies the content elements of the file to be represented.

## **vmstat - report virtual memory statistics**

### **Syntax**

**vmstat** [-fsSk] [-interval=0] [*parameters*] [*sample*]

### **Options**

- f Displays number of forks and vforks since system started and number of pages of virtual memory involved in each kind of fork.

- s Displays total number of paging-related events occurring since boot.
- S Replaces the page reclaim (re) and pages attached (a) fields with processes swapped in (pi) and processes swapped out (so).
- k Allows a dump to be interrogated to print the contents of the smm structure (default).
- n Zeros out the smm structure.

## **w – display who is logged in and what they are doing**

### **Syntax**

**w** [-b] [-x] [-l] (*user*)

### **Options**

- d Outputs debug information.
- b Suppresses the normal header from the output.
- l Displays information in long format (default).
- s Displays information in short format.
- u Outputs the same information as the uptime command.

## **wait – wait for process completion**

### **Syntax**

**wait** (*pid*)

## **wall – write to all users**

## Syntax

write user [filename]

## xargs - construct argument list and execute command

## Syntax

xargs [flag] [command] [initialarguments]

## Options

- i number      Executes the command for each non-empty number of lines of arguments from standard input.
- i replace      Execute the command for each line from standard input, taking the entire line as a single argument and inserting it in *initialarguments* for each occurrence of *replace*.
- i number      Execute the command using as many standard input arguments as possible, up to the specified number.
- t      Echo the command and each constructed argument list to */dev* prior to their execution.
- p      Asks the user whether or not the command should be executed each time it is invoked.
- n      Causes the command *xargs* to terminate if an argument list is greater than the specified size of characters.
- size      The maximum size of each argument list is set to *size* characters.

- M dir Search for manual section files in given directory.
- b Searches only for binary files.
- f Terminates list directory list created from use of -S, -R or -M flags and signals the start of file names.
- m Searches only for manual section files.
- s Searches only for source files.
- u Searches for files that do not have one of binary, source or manual section files.

**which - locate program file**

**Syntax**

which [name...]

**who - print who and where users are logged in**

**Syntax**

who [-help-file] [am i]

**whoami - print your current login name**

**Syntax**

whoami

**write - write message to another user**

## Syntax

**wc**

**wc - count words, lines, and characters**

## Syntax

**wc -lwcLcwcL**

## Options

- c Displays number of characters only.
- L Displays number of lines only
- w Displays number of words only.

**whatis - display command description**

## Syntax

**whatis command...**

**whereis - locate source, binary, and or manual for program**

## Syntax

**whereis [-sbn] [-SBSM dcr... -f] name...**

## Options

- S dir  
Search for source files in specified directory.
- B dir  
Search for binary files in given directory.

*-emptystr*            *The logical empty-string.*

## **xstr – extract strings from C program**

### **Syntax**

**xstr** [-d] [-,] *file*

### **Options**

- Reads stdin.
- d Extracts strings from specified C source (next argument).

## **yacc – yet another compiler-compiler**

### **Syntax**

**yacc** [-vd] *grammar*

### **Options**

- d Writes all define statements to y.tab.h file.
- v Writes description of parsing tables and report of grammatical conflicts to y.output file.

## **yes – be repetitively affirmative**

### **Syntax**

**yes** [*arg*]

**ypcat** - print values from a YP data base

### Syntax

**ypcat** [-k] [-t] [-d *domainname*] *name*  
**ypcat** -x

### Options

- d *domainname*  
Displays information on the domain specified by *domainname*.
- k Displays keys for maps in which values are null or key is not part of the value.
- t Inhibits translation of *nickname* to *mapname*.
- x Displays map nickname table.

**ypmatch** - print the value of one or more keys from a yp map

### Syntax

**ypmatch** [-d *domain*] [-k] [-t] *key...* *name*  
**ypmatch** -x

### Options

- d Displays key value for specified domain.
- k Displays key, followed by a colon (:), before displaying value of the key.
- t Inhibits translation of *nickname* to *mapname*.
- x Displays map nickname table.

**yppasswd** - change login password in yellow pages map.

#### Syntax

**yppasswd** [*name*]

**ypwhich** - determine which host is the current YP server or map master.

#### Syntax

**ypwhich** [-d *domain*] [-V1] [-V2] [*hostname*]

**ypwhich** [-d *domain*] [-m *hostname*][-t]

**ypwhich** -x

#### Options

-V1 Identifies which server is serving v.1 YP protocol-speaking client processes.

-V2 Identifies which server is serving v.2 YP protocol-speaking client processes.

If neither version is specified, **ypwhich** attempts to locate the server that supplies the current v.2 services.

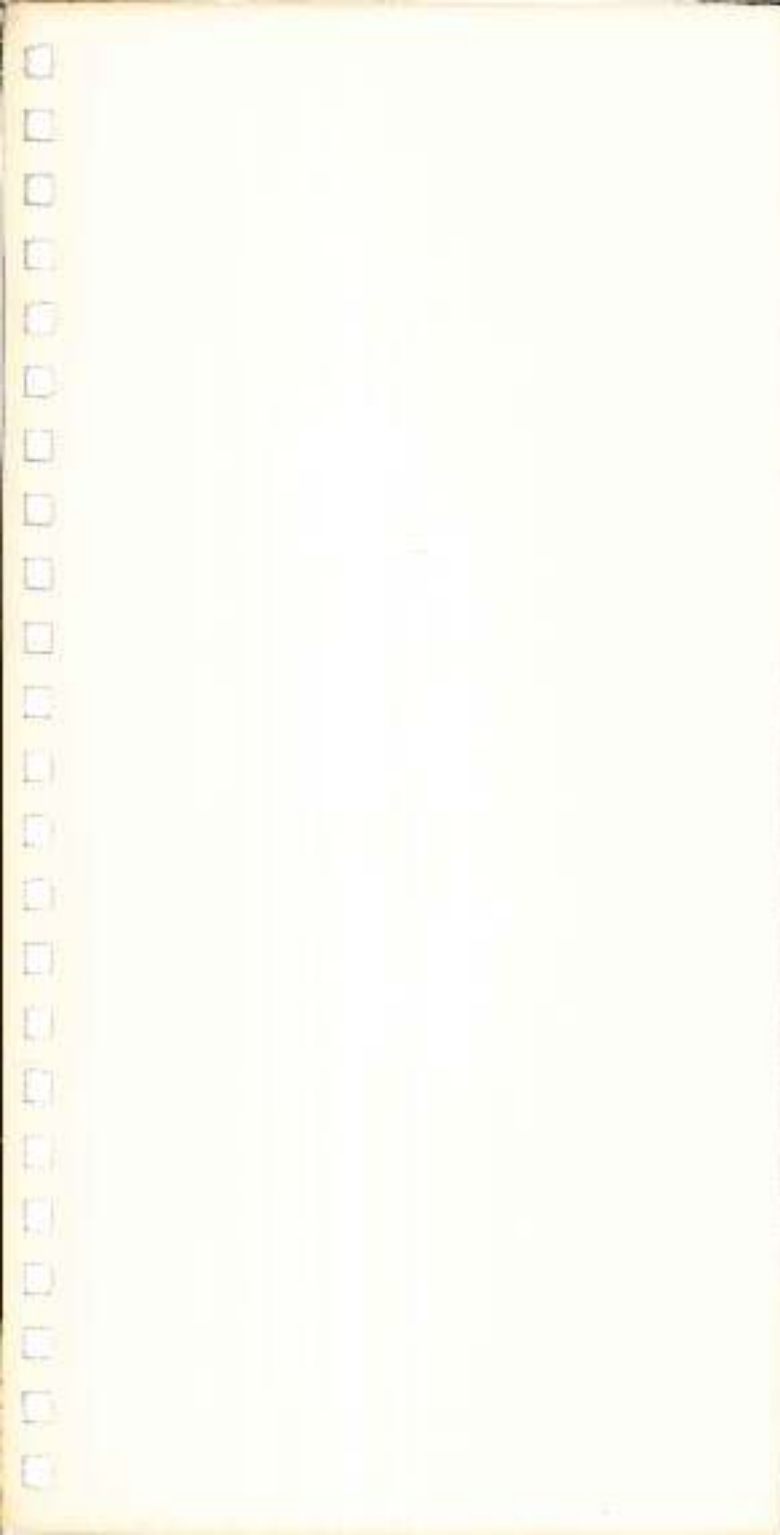
-d Uses *domain* instead of the current domain.

-m *hostname*

Finds the master YP server for a map.

-t Inhibit nickname translation and is useful if there is a nickname identical to a nickname.

-x Displays the map nickname table.



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